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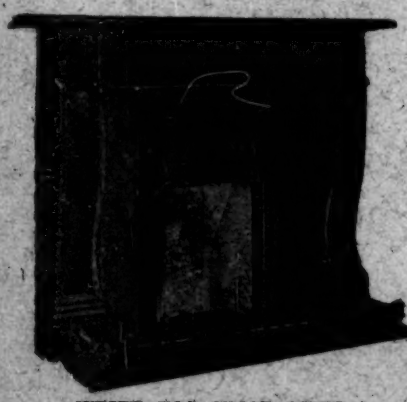

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A RECORD OF ARCHITECTURE AND CONSTRUCTION.

VOL. CX.—No. 3807. JANUARY 21, 1916.

THE MONUMENTS OF OUR PROVINCIAL TOWNS:

I.—LIVERPOOL.

THERE cannot be the slightest doubt that a magnificent pile of buildings, like a man with a great personality, is always a dominating factor. Not only is this felt in the immediate surroundings, but in the case of a building it sets, as it were, the keynote for the architecture of a whole city.

Elmes's masterpiece has precisely this effect in Liverpool. Whatever sculpture or architecture appears in the streets must be able to bear comparison with that noble pile or it will be unworthy of its position. St. George's Hall has Greek purity and scholarly refinement. It shows originality both in the massing and the detail, besides having attained a largeness of scale for which it is justly praised. Such a work, forming as it does an architectural tradition, is possibly the reason why Liverpool has many more monuments, and that they show, upon the whole, finer design than is the case in the majority of our provincial towns.

The oldest group—an equestrian statue of George III.—dates from 1810; the latest is either the Florence Nightingale, erected in 1911, or the Sir Lewis Jones, which is undated. Between the dates of these two are about twenty other groups, giving examples of the work during the whole of last century and of the first ten years of the present one, which vary greatly in merit, and unfortunately cannot be said to show a record of continual improvement. This is particularly pronounced with regard to the architectural portion and in the conception of the general scheme. The monuments are placed in various parts of the city, many of them in isolated positions; a considerable number are, however, in the immediate vicinity of St. George's Hall, either in St. John's Gardens, which are behind, or on the St. George's Plateau, which is in front.

The first to claim attention, because by period and scale it maintains the standard of the central building, is the columnar design commemorating the victories of the Duke of Wellington. This stands at one end of St. George's Plateau. Its position makes it appear to some extent disconnected, and a careful study of the site prompts the somewhat dangerous suggestion that two columnar monuments might, in this instance, have been a success, one being placed at either end, marking the boundary of the lay-out. The companion could have been erected to the memory of Nelson. Such a scheme may find a precedent in the dual obelisks of the Egyptian temple front.

But to return from possibilities to facts. The column which exists has many good points. The proportion of the shaft and the scale of the figure both seem to be satisfactory. The Doric Order is adopted, and its sturdy outline gives it a great advantage over the more slender Corinthian of the Nelson Column, which is so frequently condemned by the Londoner. The base consists of a square die ornamented with a bas-relief on each of three faces and the inscription on the fourth. Its broad simple surfaces maintain the strength of the rest of the scheme, and its connection with the column is managed with an ease and straightforwardness which are admirable. The pedestal upon which the figure stands, from the abacus upwards, is perhaps the only weak point.

Coming from this group to the statues which adorn the space in front of the Hall, a great difference is felt in the quality of work displayed. Unconsciously it is realised that there is a vast gap between highly-accomplished architecture and mediocre sculpture.

Three statues are placed in front of the building at this point—one to Queen Victoria and one to the Prince Consort, both equestrian groups, and a standing figure to Earl Beaconsfield. The two first were designed by Thomas Thorneycroft—Queen Victoria in 1869 and the Prince Consort in 1866. Both are stiff in modelling, and show the lack of life and bald commonplace handling which was only too common among nineteenth-century sculptors. The monument to Queen Victoria is the better of the two. It unmistakably shows, however, the difficulty experienced in portraying modern dress in sculpture. The riding-habit, from the near side, is uncomfortable enough, but from the far side, showing as a shapeless mass of bronze below the underside of the horse, it looks clumsy in the extreme. The figures of both monuments are in bronze and the pedestals in grey granite.

Disraeli, Earl of Beaconsfield, was modelled by C. B. Birch, A.R.A., in 1883, and is not above the level of its companions. The pedestal, in this case in red granite, illustrates a tendency which seems to exist in the minds of English artists to make the material of a new group different from that used in existing ones. In order to weld the three into a homogeneous composition it would have seemed natural to use grey granite and bronze in each case.

All three statues, by comparison with the architecture behind, seem small in conception and weak in execution. They occupy a position which in all probability might have been chosen by Elmes as a suitable place for sculpture, and it seems a pity that so fine a site should not have more worthy groups to adorn the forecourt of his building. The lions which occur in front of these groups are better than the monuments, but as purely decorative sculpture they do not come under the heading of the present article.

At the back of the Hall a scheme of public gardens, now adorned with a number of statues, was laid out in 1904. The grouping of statuary in open spaces of this sort, surrounded by floral lay-outs, green trees, bushes, and lawns, is most praiseworthy. The sculpture gains an ideal element by its association with the works and productions of nature which it could obtain from nothing else. Each group has an interest of its own, and, although many statues may be placed in close juxtaposition if the ground is judiciously planted, they do not appear as a crowd of men elevated upon posts, which is sometimes the case when a large number of monuments are placed in a public square devoid of all verdure.

The most striking feature noticed upon entering St. John's Gardens is the type of architecture adopted in the design. Ordinarily it would have been taken for granted that the whole scheme should follow the lines of the adjacent structure and a Greek garden lay-out or at least Classic detail be adopted. But here is found the freest of free renderings of so-called English Renaissance, with a long bird-nosed ogee moulding very much in evidence. Nothing could have been more out of keeping or more foreign to the older work, and that such a thing should have been allowed shows again the need of artistic censorship.

The centre of the garden is occupied by two groups placed one in front of the other. This system of placing has the

Wellington Monument.

The Back of the Monument to the Liverpool Regiment.

Detail from the Queen Victoria Monument.

unfortunate result of putting the two in competition and detracting from both. Instead of this, one large dominating group, or two groups placed in sympathetic positions, should have been employed. In the illustration the monument to the Liverpool Regiment is seen in the foreground. The figure on the Gladstone Monument can be discerned in the distance.

The Liverpool Regiment group, the work of Sir William Goscombe John, has several original features and also some excellent detail. The trophy, consisting of a standard, palm-leaf, helmet, and accoutrements, is a very clever piece of modelling of a difficult subject, and is only equalled by the drummer-boy behind. This drummer-boy is a truly brilliant piece of work, showing vigour and realistic representation, coupled with a fine decorative feeling which is only too rare in English sculpture. While, however, in detail such fine features exist, the composition as a whole seems to lack cohesion, and the bronze-work to be applied to the stone in various positions without any sufficient and reasonable connection. The figure of Victory proclaiming peace is hardly up to the high level of the rest of the design.

This difference between the standard attained by the detail of the sculpture and that of the design of the group as a whole is constantly seen. Time after time such a discrepancy occurs, and suggests that if an architect were called in first to prepare a scheme, or were commissioned to work with the sculptor, many English monuments would become works of art worthy of the highest rank among contemporary productions.

The Gladstone Memorial, by Sir Thomas Brock, also shows some good modelling. It is a type of group found fairly frequently, and in the disposition of its parts is based upon the triangle. In the centre and upon the top is a standing figure of Mr. Gladstone in bronze; below, on either side, are two seated figures, also in bronze. The three together form the key of the composition. Some of the architectural detail in this group seems a little heavy, and there are rather too many mouldings of a somewhat ordinary type, but otherwise the group reflects credit both upon its designer and its position.

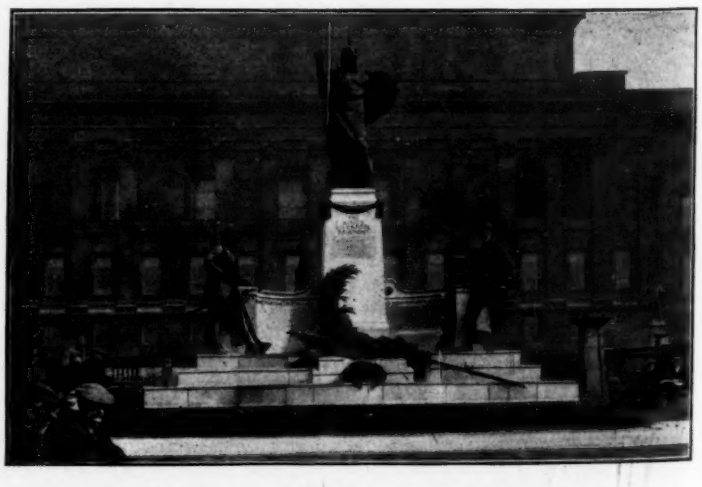
Of the remainder of the statues here two immediately behind St. George's Hall are both by Sir George Frampton. One commemorates William Rathbone, and was erected in 1899, and the other, the Right Hon. Sir Arthur Bower Forwood, erected in 1903. Both were public men connected with the City and had a local reputation which well justifies their commemoration.

The William Rathbone is by far the finer statue. Probably by virtue of his connection with the University, he is portrayed in Doctor's robes, and these have enabled the figure to receive a breadth of treatment, strength of outline and modelling which raise it well above the ordinary level.

As was noticed in the case of the monument to the Liverpool Regiment, the architecture is much below the standard of the sculpture, and it is a matter of wonder that the type of weak, insignificant moulding found in the garden walls is adopted in preference to the fine breadth and pureness of outline of the building behind. Sir Arthur Bower Forwood is portrayed in the conventional frock-coat, and, probably on account of the difficulty invariably experienced when it is employed, the group only achieves a moderate level of interest. It is somewhat strange, however, that, although the two groups occupy symmetrical positions, not only should the detail of the two pedestals vary, but that one should have been executed in what is apparently white Portland stone and the other either in brown Portland or a fine-grained brown sandstone. At any rate, the colour of one is the familiar green-stained white of the Portland pedestal under a bronze figure, the colour of the other a nondescript pale brown.

Besides those already mentioned, there are in St. John's Gardens monuments to Monseignor James Nugent, by F. W. Pomeroy, erected in 1905; to Alexander Balfour, by A. Bruce Joy, erected in 1889; and to T. Mayor Lester, by Sir George Frampton, erected in 1907. None of these call for special mention. They are standing bronze figures upon stone or granite bases. That to Monseignor Nugent is perhaps the most interesting.

Before leaving this group of monuments mention may be made of the fact, which is perhaps purely coincidence, that nearly all possess long inscriptions or several panels containing words and phrases which, added together, amount to the same thing. Unless there is some special reason for their inclusion



Monument to the Liverpool Regiment.

in the design, many of these wordy epistles do nothing to add to the interest of the monument, rather do they detract, since, if it is necessary to excuse the existence of the statue by a list of the man's claims to immortality, it were better not erected, The difficulty frequently is that the subscribers to the fund or the personal donor, as the case may be, have an intimate acquaintance with the subject. These words or sentences convey to them definite meaning and awaken memories of the worker whose voice has become still for ever. But the statue is viewed by thousands who have never known the individual alive and to whom the sculpture must be left to conjure up a picture. If it is sufficiently vivid a portrayal, not alone of his features but of his personality, his name, the dates of birth, death, and of the erection of the statue, with perhaps a statement of the field in which the man's work lay, should be all that is required. One instance of these long inscriptions may be quoted from the monument of Monseignor Nugent. There are four faces.

On the first face :—

Monseignor James Nugent, 1822–1905.
Save the boy.

On the second face :—

Erected by public subscription.
Unveiled 8th December, 1906.

On the third face :—

His words :—
"Speak a kind word.
Take them gently by the hand.
Work is the best reforming and elevating power.
Loyalty to Country and to God."

On the fourth face :—

An eye to the blind, a foot to the lame.
Father to the Poor.
The Apostle of Temperance.
The Protector of the Orphan Child.
The Consoler of the Prisoner.
The Reformer of the Criminal.
The Saviour of Fallen Womanhood.
The Friend to all in Poverty and Affliction.

Much of this is quite pointless without supplementary knowledge.

[*To be continued in our next issue.*—ED.]

NOTES.

The Possibilities of Peace.

IN the normal times of peace, when any great improvement in our towns of social life is suggested we usually hear the comment "We can't afford it," and we see the best things relegated to the region of the impossible. Yet we have been at war for nearly eighteen months, and in that time have spent daily in war an amount which would have sufficed to pay for St. Paul's Cathedral twice over. Had it ever been suggested to us that we should spend five million pounds in one week in improvements of our towns, in afforestation, or the provision of new roads and commercial waterways, we should have said that anyone who had suggested it was an impossible idealistic crank. Yet we know by actual experience that, given necessity, we can do what was previously considered impossible; and it were well that we should remember it when peace comes once more. We have been told by reformers that the expenditure in preparation for war was a waste of the national resources; yet that expense, if it obviated war, would be a drop in the bucket compared with the cost of war itself, and so the cost of preparation to combat the evils of civilised life, ill-health, ignorance, and the waste of effort—and we may add the consequent want of happiness of a large part of the population—may prove infinitely small in proportion to the advantages to be gained by a policy of wide liberality. Only to those who are utterly without imagination will the evils of modern life appear inevitable after the awakening of war.

War and Economy.

THE St. Pancras Guardians have, we learn, decided on the following economies:—(1) Single instead of double sheets of notepaper; (2) firebricks in open grates; (3) coal mixed with coke; (4) to chop their own firewood; (5) medium-weight cloaks for nurses, to serve for summer and winter alike. As to the last, we presume the Guardians are satisfied that the interests of economy are really served by nurses having clothes which are not warm enough in winter and too warm in summer, for that seems to be the inner meaning of the economy. With regard to the half-sheets of notepaper, we imagine no one will be worse off, though autograph-hunters will find the cherished signatures spread over a smaller space; however, the literary style of the writers may be improved by greater terseness and brevity. The firing economies are more to the point, but all the little items recorded are at once eloquent of the real desire to save and examples of the difficulty of the process.

Professional Organisation.

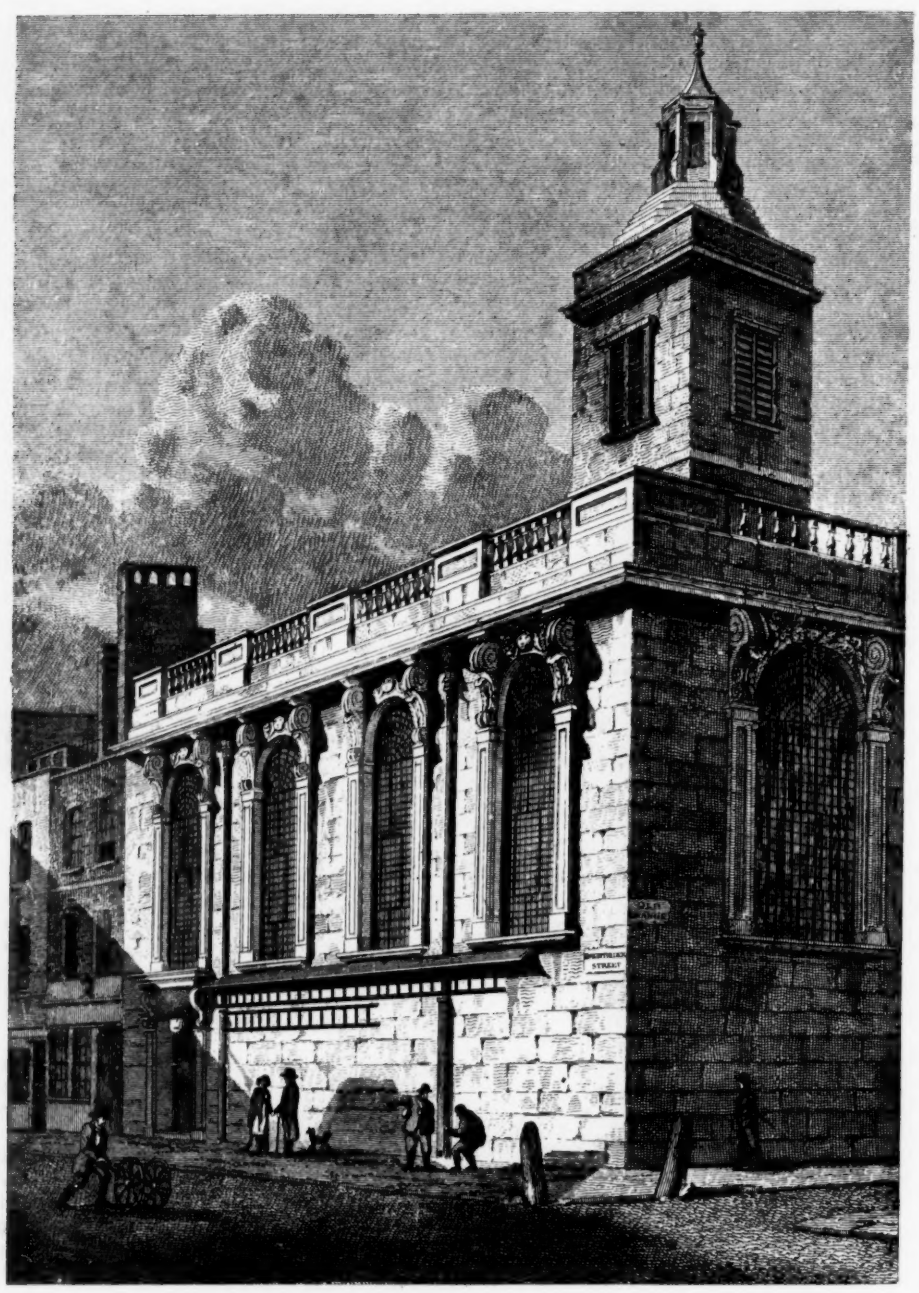
A SERIES of lectures on Professional Organisation, to be given by Mrs. Sydney Webb at the London School of Economics, should be of unusual interest at the present moment. On all sides we hear of our lack of national organisation. This defect is apparent, we are told, in our Government, our commerce, and our science, and now it seems to be inferred that it is present also in our professions. Mrs. Webb will deal, in turn, with such professions as Medicine, Teaching, Engineering, Accountancy, and Architecture. Whatever may be the case of other professions, there is little doubt that architecture, whether regarded as an art or as a profession, has a good deal to gain by better organisation, and we shall be interested to hear what so great an authority as Mrs. Sydney Webb has to say on the subject. If it is true that we all have to put our houses in order if we wish to hold our own after the war, the sooner we begin the better. We are all for concentrating national energy on winning the war; but those of us who are prevented, possibly by this very lack of national organisation, from using the whole of our energies in this direction might well devote what surplus remains to this important question. The Selection Committee of the Architects' War Committee appear to have made a start in the right direction with their analysis of the special qualifications of members of the profession, and we hope that the idea will not be altogether abandoned when the war is over.

Wren's Mistake.

WE learn from an evening paper, if the information be correct, that the instability of the dome of St. Paul's, which is causing the Cathedral authorities trouble, is mainly the result of a change of plan which was not carried far enough. The original design—by which we presume the Warrant design is meant—provided for a smaller and lighter dome; but when the present massive dome was substituted Wren decided that the piers designed for the "discarded" dome were strong enough for the heavier one, and made no alteration in the "foundations." The Portland stone piers, instead of being solid, are hollow and filled with rubble, hence the subsequent trouble. We think fact and fiction are about equally mixed in the statements we repeat. Wren may have intended a lighter dome or not if he had wanted to carry out the steeple surmounting the shallow dome shown in the Warrant design. We imagine his skill as a constructor would have been more exercised than it was by the problem he actually solved, since the weight of the enormous centre feature would have greatly exceeded that of the present lantern; nor is there room in the design for the core of brickwork which carries the lantern. It is likely that Wren's task may have been made more difficult by architectural improvements he made in execution, which added to the weight to be carried; but the main point is that a dome, if not constructed on the principle of horizontal courses succeeding one another without weight at the apex of the curve, must always be in a state of greater or less unstable equilibrium, and the material resources of the time did not permit of those expedients which are in the hands of the builders of to-day. Most great buildings look the embodiment of eternity, while they are the battleground of opposing forces, the action of which is always tending towards destruction.

The Pastel Society.

THERE is a great deal of good and interesting work at the Pastel Society's Exhibition now being held in the Galleries of the Royal Institute of Painters. Mr. Herbert Draper's two portraits—No. 11, "Betty," and No. 13, "Yvonne"—are good. Mr. Lewis Baumer sends four dainty and spirited drawings entitled "The Blue Dress," "Pierrot," "The Pink Dress," and "Columbine" (Nos. 22-25). "L'Institut de France—Night" (No. 36) is a clever impressionistic study by Mr. Terrick Williams, R.O.I. Mr. Arthur Wardle's studies of animals, Nos. 55-60, are masterly in their vigorous expression of life. Mr. S. Melton Fisher sends a charming study in No. 63, "A Sleeping Girl," which is one of the best things in the Exhibition. We like Mr. J. Barnard Davis's work, Nos. 87-90, consisting of country subjects in Buckinghamshire, and showing much refinement and sense of colour. No. 100, "Crossing the Dunes," by Miss Maude Harris, is a powerful study of two Dutch women, portrayed with much realism. Mr. Thos. F. M. Sheard, R.B.A., sends three interesting studies from Arab cities in the desert. Mrs. Burn-Murdoch's "Foxgloves" (No. 124) gives a pleasing effect of colour. Mr. Bernard Partridge sends two admirable figure sketches entitled "Studio Studies" (Nos. 155 and 156). Mr. Wynford Dewhurst sends a series of his characteristic work in landscape, Nos. 184-189. Mr. P. Harland Fisher's two portraits, No. 200 ("Major G. T. Kelly") and No. 201 ("Mrs. George Kelly"), are excellent. Miss Sarah Challice Constable's landscape studies are very pleasing, especially No. 229 ("On the River at Wareham"), No. 231 ("A Pool on a Dorsetshire Common"), and No. 232 ("Corfe Castle"), and we like Mr. Edward H. Chetwood-Aiken's "Afterglow—Holland" (No. 246). The general level of the Exhibition is a high one.



St. Mary Magdalen, Knightrider-Street.

From an engraving by J. Booth, 1812.

THE LONDON CHURCHES OF WREN AND LATER ARCHITECTS OF THE RENAISSANCE.

No. IV.—St. Martin, Ludgate-Hill.

ST. MARTIN is one of the most successful of Wren's designs, and is particularly well suited to a position in which it is frequently viewed silhouetted against the mass of St. Paul, the slenderness of the lead steeple forming a pleasing contrast to the greater bulk and more rounded outlines of the western campaniles of the Cathedral. The church which previously stood on the site is stated, by Stow, to have been rebuilt in the reign of Henry VI., and in it was a monument to William Sevenoake, who was Lord Mayor in 1418, and whom legend connects with the town of Sevenoaks, where he is said to have founded a hospital and school.

The present church was rebuilt by Wren and completed in 1634. The advowson of the rectory was formerly in the possession of the abbot and convent of Westminster, but was bestowed by Queen Mary on the See of London.

There were originally three entrances to the church and a gallery along the south and west ends; but the west gallery has been partly removed, the remainder forming an organ gallery, while the south gallery has been done away with, leaving the oak screen and doorways intact. The side doorways in it form the present approaches to the church, which is almost a square in plan. Four columns on high bases in the centre of the church, with corresponding pilasters against the side walls, divide the church into nine square compartments. A cruciform figure is formed by the two segmental plaster vaults which intersect in the centre of the church, rising from the entablatures enclosing the angle bays. The four angle spaces are covered by flat ceilings. The effect of the old brass chandelier which has been hung in the centre of the church within recent years is very successful, and affords an interesting example of the decorative value of suitable fittings, which do more to make or mar the appearance of a building than is often realised. The woodwork of the church is good, and, though it has been partially reconstructed and altered, nothing has been done which destroys the internal effect of a very pleasing design. The three doorcases at the entrance screen, and that of the door leading to the vestry, the pulpit, and altar are all good examples of the work of the period. The well-designed marble font dates from 1673, and was presented by Thomas Morley.

The rectory of St. Mary Magdalen, Old Fish-street, which was situated on the north side of Knightrider-street, in the south-west angle of Old Change, was united with that of St. Martin when the church, which was seriously damaged by fire in 1886, was pulled down. A brass memorial plate of the date of 1586, on which is the figure of an old man in a gown, which is supposed to represent Thomas Berry, a fishmonger, who left a messuage in Southwark to the poor of the parish, has been fixed to the north wall of St. Martin, and with some panelling which was reused in the vestry of St. Martin was rescued from St. Mary Magdalen. The church, as rebuilt by Wren, was a small and simple building, with aisles and with a low steeple. The parish of St. Mary Magdalen was, after the Great Fire united to that of St. Gregory by St. Paul, which, with the church of St. Faith, may be said to have been practically incorporated in the old cathedral, which was described by Fuller as follows:—"Truly the mother church having one babe in her body (St. Faith) and another in her arms (St. Gregory)." Wren seems to have exercised most skill in internal design when dealing with square sites and domed spaces, and was far less successful when dealing with the more conventional problem of the aisled church, which, excepting when the outline of the church, as in St. Clement Danes, demanded an exceptional treatment, are somewhat disappointing.

COMPETITION NEWS.

It must be understood that the following paragraph is printed as news, and not as an advertisement; and that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.

Alterations and Extensions to Harris Academy, Dundee.

The Dundee School Board, at its meeting last week, considered the report of Mr. Alexander N. Paterson, of Glasgow, the assessor appointed to adjudicate on the designs submitted in connection with the competition for the proposed alterations and extension of the Harris Academy. Mr. Paterson gave his award as follows:—1, Mr. W. B. D. Keith, architect and valuator, 10, Whitehall-street, Dundee; 2 and 3, Messrs. M'Laren, Sons, & Soutar, architects, 10, Reform-street, Dundee; 4, Mr. James Findlay, architect, 33, Albert-square, Dundee. The Board accordingly agreed to pay Messrs. M'Laren the premium of fifty guineas and Mr. Findlay the premium of thirty guineas. The author's estimate of £20,050 has been confirmed by his surveyor as accurate at pre-war rates. To cover present charges this estimate would have to be increased by 27½ per cent.

BOOKS RECEIVED.

ENGINEERING GEOLOGY (second edition). By Heinrich Ries and Thos. L. Watson. (London: Chapman & Hall, Ltd. 17s. net. New York: Jno. Wiley & Sons.)

THE WELSH HOUSING YEAR-BOOK, 1916. (Cardiff: South Wales Garden Cities and Town Planning Association. 1s. net.)

LEKTRIK LIGHTING CONNECTIONS (fourth edition). Published by A. P. Lundberg & Sons, 477-489, Liverpool-road, N. 6d. net.

CIVIL ENGINEERS' COST-BOOK. By T. E. Coleman. (London: E. & F. N. Spon, Ltd. 6s. net.)

TACHEOMETER SURVEYING. By M. E. Yorke Eliot. (London: E. &. F. N. Spon, Ltd. 5s. net.)

SPON'S ARCHITECTS' AND BUILDERS' POCKET PRICE-BOOK. (London: E. & F. N. Spon, Ltd. 2s. 6d. net.)

THE HOUSING PROBLEM AT GREENOCK.

To assist in relieving the housing difficulty, Greenock Corporation have agreed to proceed with another extensive scheme. Ground has been secured in the east end, and at a special meeting it was decided to accept the tender of the West of Scotland Building Company for the erection of a large number of houses of the cottage type. Financial assistance is being given by the Government. A similar undertaking is at present being carried out in the centre of the town, and at the Battery Park the Admiralty are erecting huts for workmen engaged in war service.

GENERAL NEWS.

Professional Announcement.

Messrs. Honeyman & Keppie, 257, West George-street, Glasgow, intimate that they have assumed Mr. Andrew Graham Henderson, A.R.I.B.A., as a partner, and that in future business of the firm will be carried on under the name of John Keppie & Henderson.

Consulting Surveyors for Army Purposes.

We hear that Mr. H. M. Cobb and Mr. Edwin Savill, members of the Council of the Surveyors' Institution, have recently been appointed by the Army Council Consulting Surveyors to the Eastern Command.

New Wharf, Dundee.

The new wharf at Dundee Harbour, which has cost £100,000, is now ready for use, but, owing to the existent circumstances, no formal ceremony will mark its opening. It will be known as King George's Wharf.

Institution of Civil Engineers.

At a meeting of this Institution, held on the 11th inst., the following elections of Associate members and admissions of students were reported:—Elected Associate members, thirty-two; admitted as students, three.

A D.S.O. for a Bridlington Surveyor.

In the list of awards of the Distinguished Service Order appears the name of Major Cecil G. Bradley, of the King's Own (Yorkshire Light Infantry). Major Bradley was for five years Surveyor to the Goole District Council. Just prior to the outbreak of war he resigned his position to take up a similar appointment at Bridlington. While at Goole he was in command of the local company of Territorials.

St. Paul's Bridge.

The Corporation of London has obtained Parliamentary sanction for extending the time allowed under the original Act for the compulsory purchase of the properties needed in connection with the construction of St. Paul's Bridge. The negotiations in connection with the proposed new bridge have been suspended, and the City is re-letting on tenancies terminable at short notice many of the properties already acquired.

"Lektrik Lighting Connections."

We have received from Messrs. A. P. Lundberg & Sons, electrical engineers, 477 to 489, Liverpool-road, N., a copy of their new (fourth) edition of "Lektrik Lighting Connections." This edition contains a new section on "Automobile Controls," and various corrections and additions have been made elsewhere. It is a valuable little booklet for everyone who has anything at all to do with electric lighting. The published price is 6d. net.

Building Work and the War.

Mr. James Brown gave an interesting address to the Manchester Society of Architects recently on the relations between the building owner, the architect, and the builder. The present system of carrying out work under contract, he said, was perhaps as near perfection as could reasonably be expected, but from the builder's point of view it was capable of improvement in some of its details, and in view of the building slump during the war this appeared to be the time for overhauling and revising conditions.

The Institute of Industry.

At the recent luncheon which the Court of Directors of the Institute of Industry gave to the Right Hon. Sir Edward Carson, K.C., M.P., the following resolution was carried unanimously:—"That this meeting of manufacturers and other representative men closely connected with all phases of industrial activity in the British Empire fully endorses and approves of the objects and policy of the Institute of Industry (of Great Britain and Ireland), Ltd., and recommends all persons or companies interested in the industrial life of the British Empire to support the Institute by becoming members."

Deceased Architect's Estate.

Lieutenant Samuel Hall, Manchester Regiment, of Cleveleys Hydro., Cleveleys, Blackpool, architect, was killed in Gallipoli on June 4, leaving £22,700.

"Willing's Press Guide."

Messrs. James Willing, Ltd., 125, Strand, W.C., have published the forty-third issue of "Willing's Press Guide," which, following the precedent of former years, has been carefully revised, and supports its reputation as one of the handiest and readiest of reference works of its class. The published price is 1s.

The Surveyors' Institution.

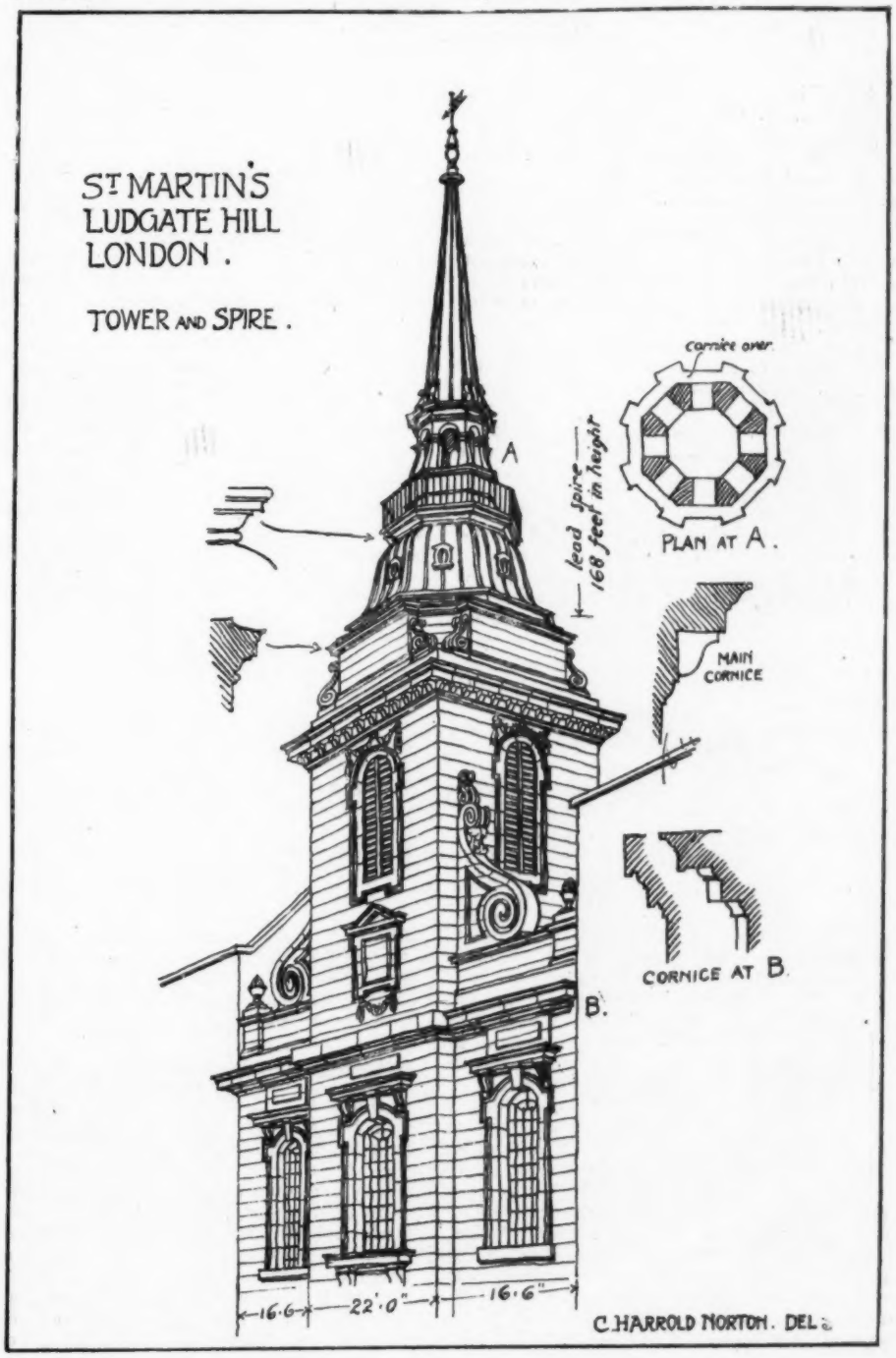
The next ordinary general meeting of this Institution will be held on Monday, February 7, when a paper entitled "Dilapidations—Some Notes and Suggestions" will be read by Mr. C. F. Slater. The Council, in the interests of the attendance, to meet the unusual present difficulties of war conditions, and to secure that full justice should be done to the papers read before the Institution, have decided to change the hour of meeting from 8 p.m. to 5 p.m., and also to reduce the number of meetings to one a month instead of one a fortnight. The remaining ordinary general meetings of the session will therefore be held on February 7, March 6, April 10, and May 8, the meetings on January 24, February 21, and March 20 being abandoned.

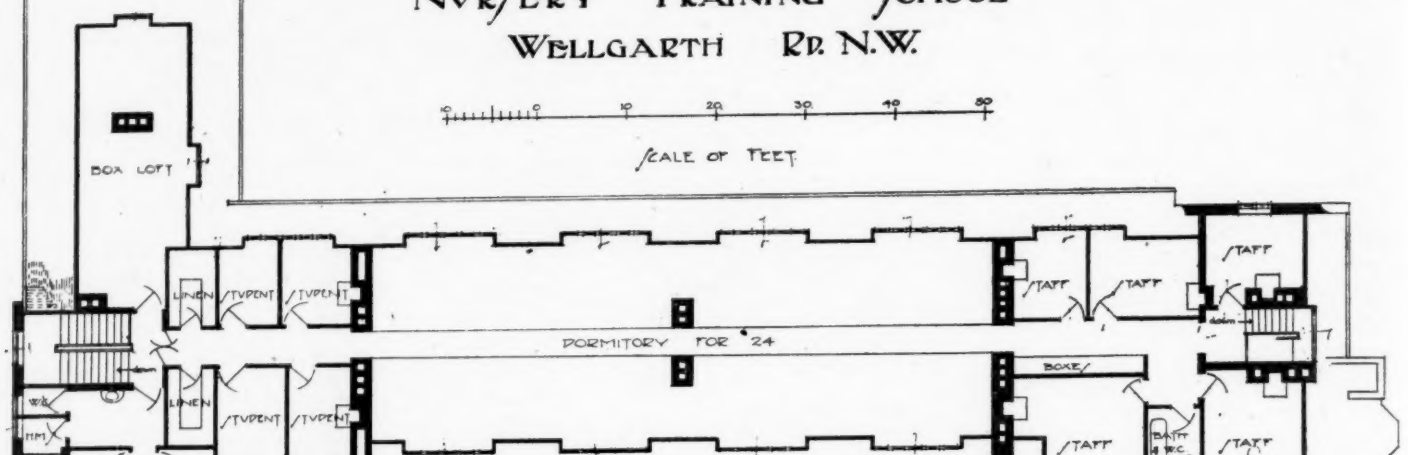
Acoustics at the Old Bailey.

The acoustic properties of the judge's court at the Old Bailey formed the subject of complaint by counsel a few days ago. Mr. Hume Williams, K.C., remarked that he had difficulty in hearing a witness's answers, and said that while addressing the jury the other day he had had the remarkable experience of having his own words hurled back at him. Mr. Justice Darling: "One hears rather well on the bench, but I have heard that counsel experience great difficulty in hearing. I have been told that in a case in which a judge pronounced a sentence of seven years' penal servitude the prisoner was paralysed by hearing a voice from the roof giving him another sentence."

The Building Trade in the Midlands.

The annual meeting of the Midland Centre of the National Federation of Building Trades Employers of Great Britain and Ireland was held in Birmingham on the 12th inst. In the annual Report it was stated that, speaking generally, the condition of the building trade in the Midland Centre during the past twelve months had been very unsatisfactory. It was true that in two or three towns—notably Birmingham, Coventry, and Wolverhampton—the erection or extension of factories required for war work had involved a certain degree of activity, but the demand on the part of private individuals and public bodies for building operations had been insignificant.





Messrs. Lovegrove & Papworth, Architects. (*See page* 67.)

ILLUSTRATIONS.

Restoration of a Portion of the Parthenon Frieze.

THIS work was carried out by Messrs. H. H. Martyn & Co. at the Cardiff Empire Theatre, and is referred to in our Correspondence columns. The "restoration" is a remarkably fine one, and does great credit to Messrs. Martyn.

In reference to these conjectural restorations of the Panathenaic Procession a few facts concerning the acquisition by Great Britain of the Elgin Marbles, with other fragments from the Parthenon and adjacent buildings, may be of interest.

It is now a hundred years ago that public opinion began to favour the purchase of the antiquities known as the Elgin Marbles. Previously, the enterprise of Lord Elgin had been condemned, and it was only after great efforts on the part of a number of enlightened people that £35,000 was voted by Parliament to secure the works now considered to be priceless. The romance of these sculptures forms a fascinating chapter, not only in the history of art, but of international relations. Napoleon and Nelson come into the story, with many other celebrities of a century ago, and no antiquities in the world have more interesting associations.

An architect was responsible primarily for the national inheritance of the Elgin Marbles. His name was Thomas Harrison, and he was employed in 1796 by the Earl of Elgin in connection with a mansion in Fifeshire. Harrison was interested in archæology, and when, in 1799, the Earl of Elgin was appointed to the Embassy of the Ottoman Porte, Constantinople, he suggested to the new ambassador that some of his time might be employed in making the beauties of Athenian architecture and sculpture better known to students. Lord Elgin liked the idea, became enthusiastic when he thought more about it, and eventually planned to preserve records of Greek art within the Turkish dominions.

Lord Elgin gave special attention to the Parthenon, and tried to interest the British Government in the subject. His idea was to obtain casts of the sculpture and drawings of the whole building, so that before the structure suffered demolition, as seemed probable, a complete record should be available in after-years. The Government, however, had other weighty matters to occupy their attention, and their reply was "entirely negative." So Lord Elgin embarked on a scheme of his own, seeking first of all the co-operation of J. M. W. Turner, R.A., and, when that genius proved inaccessible, turning to another artist for assistance. He arranged with Tita Lusieri (a Neapolitan portrait painter), two architects, two modellers, and a figure painter to proceed to Athens. The work of these artists was restricted at first by the authorities, but opposition was removed gradually, scaffolding was placed round the Parthenon, and every facility was granted to the party. As a matter of fact, the Turks cared nothing for the building as an antiquity, and had even pounded down some of the statues to make mortar; but there were political reasons why they did not favour the Elgin enterprise from the beginning.

It had not been Lord Elgin's intention to remove the sculptures, but to obtain plaster casts and measured drawings. But he was so distressed by the indifference of the Turks that he determined to secure the actual Marbles before they were destroyed in ignorance. After negotiations, in which bribery necessarily played a part, concessions were made and several hundreds of workmen were engaged to remove the sculptures from the building. Between 1803 and 1812, when Lusieri left the scene, large numbers of cases containing the precious antiquities were despatched, and some of them did not reach England without adventure. For instance, the *Mentor*, conveying a part of Lord Elgin's cargo, was wrecked near Cerigo, and divers worked for three years to recover the Marbles.

Lord Elgin hoped that when the British Government heard of his success in securing the beautiful relics of the past they would take over the various objects at a price sufficient to cover the heavier expenses. That was all he asked. But his surprise was intense when his offer was not only rejected but his actions were described as vandalism. One connoisseur, who carried great weight, declared that the works could not be attributed to Phidias, as that master had never worked in marble at all; and he believed that the sculptures which decorated the pediments of the Parthenon were executed in the time of Hadrian. Other influential people concurred, and the whole enterprise seemed likely to end in a fiasco. The vicissitudes of fortune which had afflicted the figures through many centuries still continued. Instead of passing direct from Athens to the British Museum, as had been anticipated, they were left in the possession of Lord Elgin, who was at his wits' end to know what to do with them. He would have presented the fruits of his labours to the nation but for the fact that his outlay had been so considerable. He rejected the idea of parting with the treasures to any other country but his own, though his patriotism was sorely tried. His private house in Park-lane had been turned into a museum, but the works still failed to command respect. They were shown at Burlington House ("Athens transplanted to Piccadilly") until the spring of 1815, when, the building having been sold, Lord George Cavendish requested that the Marbles should be removed. The Trustees of the British Museum were asked to take them on deposit, but refused, and the outlook was not encouraging.

The dawn of appreciation came at last, largely through the unconquerable spirit of the ill-fated historical painter, B. R. Haydon. He saw the value of the works and understood their true artistic importance. Other artists joined him in his agitation, and at last a Select Committee of the House of Commons was appointed. They sat from February 29 to March 13, 1816, and tried to sift the evidence. Those who spoke in favour of the treasures included Sir Thomas Lawrence, Nollekens, Flaxman, Westmacott, Chantrey, and William Wilkins, afterwards architect of the National Gallery, who, though he doubted the Phidias tradition, felt bound to admit that the objects were valuable as examples of architectural sculpture. Charles Rossi wrote to Canova and said if he had not seen the Elgin Marbles he had seen nothing. So Canova came to England and added the weight of his appreciation to the project.

It was considered doubtful, however, whether the purchase of the works would be recommended, and still more so when it was intimated that the most powerful advocate of all, B. R. Haydon, would not be examined, "out of delicacy to Mr. Payne Knight" (the oracle of art at that time, who was against the purchase). An international competition seemed to be pending. The King of Bavaria told his agents in London to draw £30,000 as an immediate advance to Lord Elgin, and other European sovereigns were also on the alert for a bargain. But, after all, the Marbles were secured for England. In June, 1816, Parliament rather sulkily voted £35,000 to Lord Elgin, and the sculptures associated with his name were duly removed to the British Museum. His own expenditure, with an allowance for interest, amounted to some £74,000.

It is instructive to reflect on the change in opinion which has taken place in a hundred years. Then only a few realised the value of the imported treasures; now they are regarded with the greatest veneration and are the standard works for study. Watts, the great painter, regarded them as his chief teachers, and scarcely an architect, sculptor, or painter has not learnt something from them since they became available to students in this country.

St. Martin, Ludgate-Hill.

WE reproduce this plate from "The Churches of Sir Christopher Wren," by J. Clayton, which was published by Messrs. Longmans, Green, Brown, & Longman in 1848, and which we give by the courtesy of Messrs. Longmans, Green, & Co. The gallery over the west and south sides has been done away with in recent years, the side entrances blocked up, and the centre entrance remodelled, but our illustration represents the church at an earlier date.

No. 19, Weymouth-Street, W.

THE contractors for this house were Messrs. James Smith & Sons (Norwood), Ltd., of 106, New Bond-street, W.; the wrought-iron work was executed by Messrs. H. & C. Davis & Co., of Clapham; the lift was supplied by the Titan Lift Company; the fibrous-plaster work was carried out by the Modellers and Plastic Decoration Company; and the door furniture by Messrs. C. Harvey & Co.

Nursery Training School, Golder's Green.

THIS building was opened by her Grace the Duchess of Marlborough on December 10, 1915, and has been erected by Messrs. John Greenwood, Ltd., from the designs of Messrs. Lovegrove & Papworth, for the Women's Industrial Council. The building is designed to carry on the work commenced a few years ago in King Edward-road, Hackney, of training girls of the middle classes in the care of young children. The girls live in the school for a year, and are taught elementary nursing, housewifery, and child training, after which they are qualified to accept positions in private families, the demand being far greater than the supply. The children also live in the school, coming from homes where their proper attention is impossible, or from which their absence is advised on medical grounds. The building contains bedrooms and dormitories for the students on the second floor and nurseries on the first floor. Each nursery contains only a small window to the north, but to the south or garden front the whole of the side is enclosed by collapsible partitions leading on to a wide verandah, which can also be enclosed by collapsible partitions, the whole of which have been supplied by the Educational Supply Association.

Externally the building is faced with mixed Amersham bricks, and the roof is covered with hand-made Hartshill brindled plain tiles; internally the walls have been left for the present plain, distempered with jointless cork adamant flooring by Messrs. E. J. Moon. The whole of the joinery is stained with solignum and wax polished.

The staircases are so arranged that access in case of fire is assured to either one or other of the stairs from all upper rooms, irrespective of where the fire breaks out.

The ground floor contains the warden's office, matron's room, student's common room and dining-room, kitchen, scullery, and cloakrooms, all the principal rooms opening on to the arcaded verandah to the south, the north front containing the connecting corridor. In the basement are the laundry drying-room and heating chamber.

The steel construction is by the Aston Construction Company, Ltd., electrical engineering by Messrs. Speedy Eynon; and hot-water installation by Messrs. Potterton & Co. All windows are arranged for cleaning from the inside, the steel sashes and leaded glazing being by the Crittall Manufacturing Company.

Memorial Altar, etc., Wiveliscombe Parish Church.

AT the parish church, Wiveliscombe, Somerset, a new altar, reredos, and east window have been erected in memory of the late Lieut. R. E. Hancock, D.S.O., who was killed in action at Festubert on October 29 last, aged twenty-six. The reredos is of carved oak, and is designed to contain a large central panel with a painting of the Crucifixion, by Miss Mabel Esplin. Mr. F. Bligh Bond, F.R.I.B.A., of Glastonbury, is the architect for the work; and Messrs. R. L. Boullon & Sons, of Cheltenham, are the contractors.

The window (a rose-window) will be filled with glass containing a figure of St. Michael, designed by the architect, and executed by Miss A. M. Erskine, of Stamford.

West Park Presbyterian Church, New York.

THIS church, which is a fine example of Messrs. Carrère & Hastings' work, is the more interesting to us as such buildings in this country, being, as they are, church and institute in combination, are, as treated here, too frequently lacking in dignity and architectural character. Our reproductions are from the *Brickbuilder*, by whose courtesy we republish them.

FIFTY YEARS AGO.

The Liverpool Opera House.

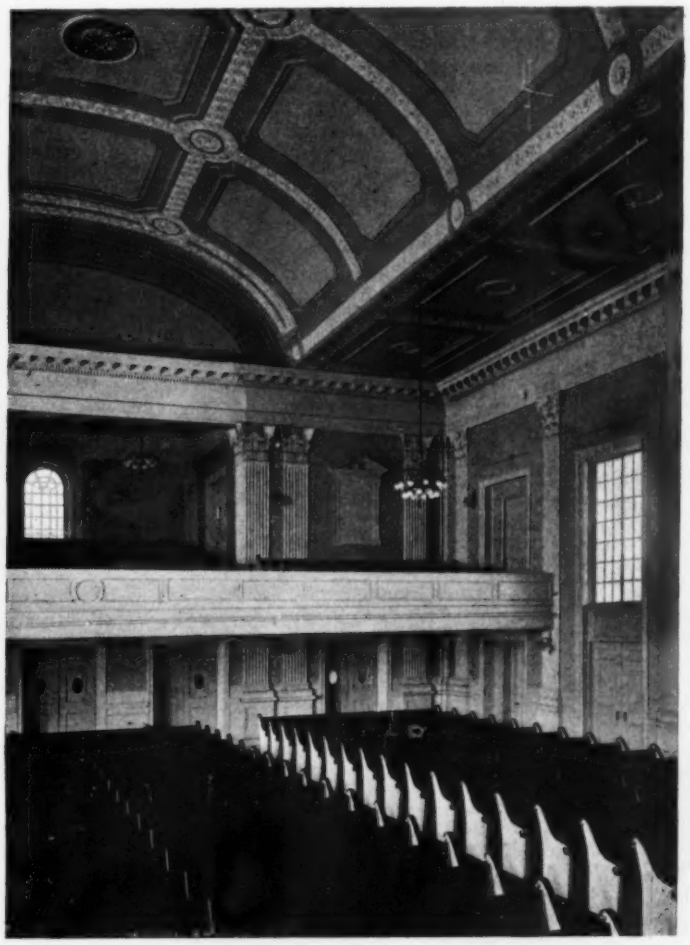
MADEMOISELLE TITIENS has laid the chief stone of the Alexandra Theatre and Opera House on a site in Lime-street, between London-road and the railway-station, where there are three street frontages, the principal one to Lime-street. Mr. A. Salomons, of Manchester, is the architect, and Messrs. Jones & Son are the contractors. The building is to be completed by October 1 next. The report of the directors of the company who are erecting the building states that 3,830 shares have been subscribed for and £4 a share called up. The site cost £15,750. The main walls of the building have been raised 18 in. above the ground, at a cost of £1,457. The estimated cost of the whole is £15,000, for which, says the Report, "the whole of the most modern improvements (including a covered entrance drive) will be carried out, and 1,500 persons will be seated in a theatre second to none in Europe, in comfort, convenience, and good taste. The shops and restaurant included in the proposed building are estimated, by competent authorities, to produce a rental of £600 a year."

[*** We give the above extract from the *Builder* of January 20, 1866.—ED.]

SAVING ON PUBLIC WORK.

The London County Council are suggesting to the City Corporation and the borough councils of London that, with a view to effecting economies during the war, arrangements might be made where similar duties are performed by some or all the authorities for their transfer to one authority only for the time being, and, if necessary, for a temporary amalgamation of staffs with that object.

Interior View looking towards Chancel.



Interior View looking towards Galler

West Park Presbyterian Church, West 174th-Street, New York, N.Y.

Messrs. Carrère & Hastings, Architects.

(From the *Brickbuilder*, Boston, Mass.)

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MEETINGS.

FRIDAY, JANUARY 21.

Institution of Mechanical Engineers (at the Institution of Civil Engineers, Great George-street, Westminster).—General meeting. 6 p.m.

MONDAY, JANUARY 24.

University Extension Lecture (at the Victoria and Albert Museum).—Mr. Banister Fletcher on "Belgian and Dutch Renaissance and Modern Architecture." 4.30 p.m.

THURSDAY, JANUARY 27.

University Extension Lecture (at the British Museum).—Mr. Banister Fletcher on "The Pantheon." 4.30 p.m.

PROPOSED HISTORICAL PAGEANT.

The City Corporation are being asked for the use of the Guildhall on a day in March next for the holding of a great historical pageant in aid of the Young Men's Christian Association's scheme for the provision and maintenance of soldiers' huts.

CORRESPONDENCE.

Conjectural Restoration of the Parthenon Frieze.

We have received the following correspondence in reference to Mr. A. C. Conrade's conjectural restoration of the Parthenon Frieze, an illustration of which appeared in our New Year's issue:—

SIR,—In your journal of the 7th inst. there is illustrated a "Portion of the Parthenon Frieze, being a conjectural restoration by A. C. Conrade."

We should like to make our position perfectly clear on this matter, as we have no doubt you will understand our astonishment at the publication after we have explained the facts. Enclosed we have pleasure in sending you photographs of the "Restoration of the Parthenon Frieze," which we have recently designed and executed at the Cardiff Empire Theatre. We were requested by the architect to send to Mr. Conrade copies of these photographs on September 13, 1915. This frieze was then completely modelled and designed for the Cardiff Empire Theatre without relation to any suggestions from Mr. Conrade, and, in fact, without his knowledge until that date.

We feel sure that it will be apparent to you that the sketches illustrated are, in principle, almost replicas of the photographs which we supplied to Mr. Conrade, with the exception of the lower panel. We would more especially point to the two central panels illustrated, which have apparently been very closely worked to from a technique point of view.

We would, therefore, ask you to kindly give the fullest publicity to this fact, and also to publish the photographs with our name attached in your next issue.

H. H. MARTYN & CO., LTD.,
Sculptors and Architectural Decorators.
Cheltenham.

We communicated with Mr. Conrade, and the following is his reply:—

SIR,—I am truly sorry if I have in any way annoyed Messrs. Martyn. If so, it was quite unintentional on my part. I have had a student's ticket for the Græco-Roman Department of the British Museum for years; have shown and "restored" nearly everything there; and it is hardly likely that the frieze would have escaped me. My drawings are based upon the frieze itself (as the photographs of the latter will show), and also upon John Henning's restoration (1829-30).

Messrs. Martyn will pardon my saying so, but I have at least as much right to restore a dilapidated frieze as they have. In two restorations of the same thing there must be at least some resemblance. And I think everyone will admit that a further examination of their frieze and mine will show differences throughout.

In any case, should I have unwittingly offended Messrs. Martyn, I hope that they will accept my acknowledgments and apology.

I shall be pleased to answer any further inquiries. ALFRED CHARLES CONRADE.

P.S.—In reference to the Cardiff Empire Theatre, for which Messrs. Martyn's frieze was executed, I may say that I painted the act drop for this, and did nothing more.

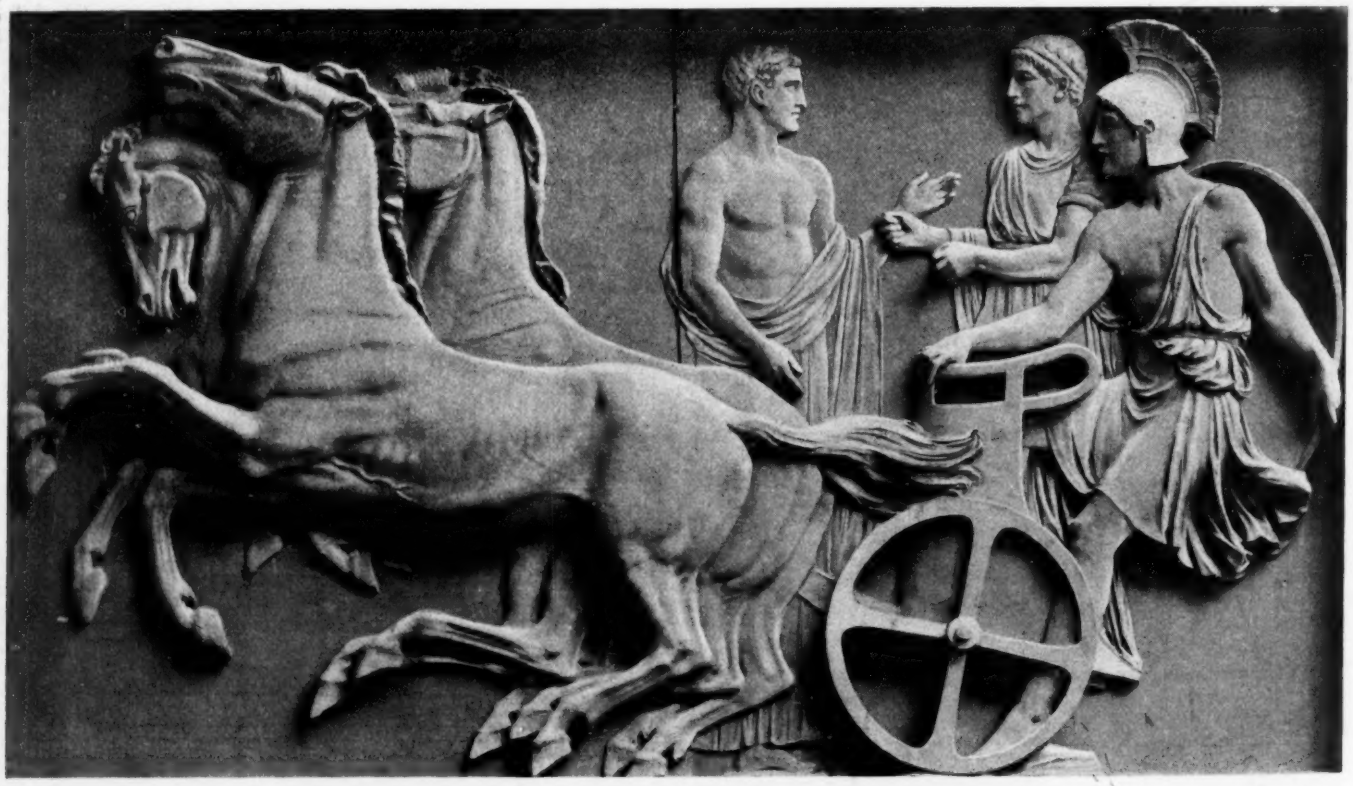
I introduced part of the frieze into this in June, 1915, illustrated in the *Builder*, October 8, 1915 (some time before the date, September 13, 1915, on which Messrs. Martyn say they wrote me, as was the case). The sketches you had were completed before then by some time.

The Committee of the Moss Empires approved my sketch, as can be seen in the letter from the architects (Messrs. Milburn, of Sunderland) of June 25, 1915, to me, confirming the order. I wrote Messrs. Martyn, offering to model the frieze, but they replied, under date July 22, 1915, that that matter was settled. Still, I offer Messrs. Martyn complete and unconditional apology and regret for any wrong I may have done them, or for anything for which I am indebted to their frieze. A. C. C.

[*** We give, in one of our inset plates this week, the illustrations referred to in Messrs. Martyn's letter. We may add that in publishing in this issue Messrs. Martyn's admirable restoration of a portion of the Parthenon Frieze executed by them at the Cardiff Empire we are giving the most emphatic and convincing testimony to the statements made in their letter. We may remark that we published Mr. Conrade's drawings in good faith, without knowing that he had the data which it now appears clear he had to draw upon.—ED.]

POPULARISING STONEHENGE.

Mr. C. H. E. Chubb, of Bemerton Lodge, Salisbury, upon formally taking possession of Stonehenge, has reduced to one-quarter the charge of admission to men in uniform.



Part of Conjectural Restoration of the Parthenon Frieze.

Designed for and executed at the Cardiff Empire Theatre by Messrs. H. H. Martyn & Co.

CONSTRUCTION SECTION.

Fig. 1.

TEMPORARY BUILDINGS FOR WAR PURPOSES.

By T. P. Bennett, A.R.I.B.A.

VARIOUS war purposes have rendered necessary the rapid erection of extensive temporary buildings, and the need for meeting this demand has called into existence many new problems for the architect and the builder.

It is probable that twelve months ago few experienced men had realised the enormous difference between building conditions in the heart of towns and those prevailing upon the sites frequently selected for large army camps and munition factories, and the full extent of the difference was only appreciated after the erection of large numbers of buildings in these isolated districts.

For various very practical reasons, most of the sites selected for such structures are several miles from any large towns, and are a considerable distance from the nearest railway-station.

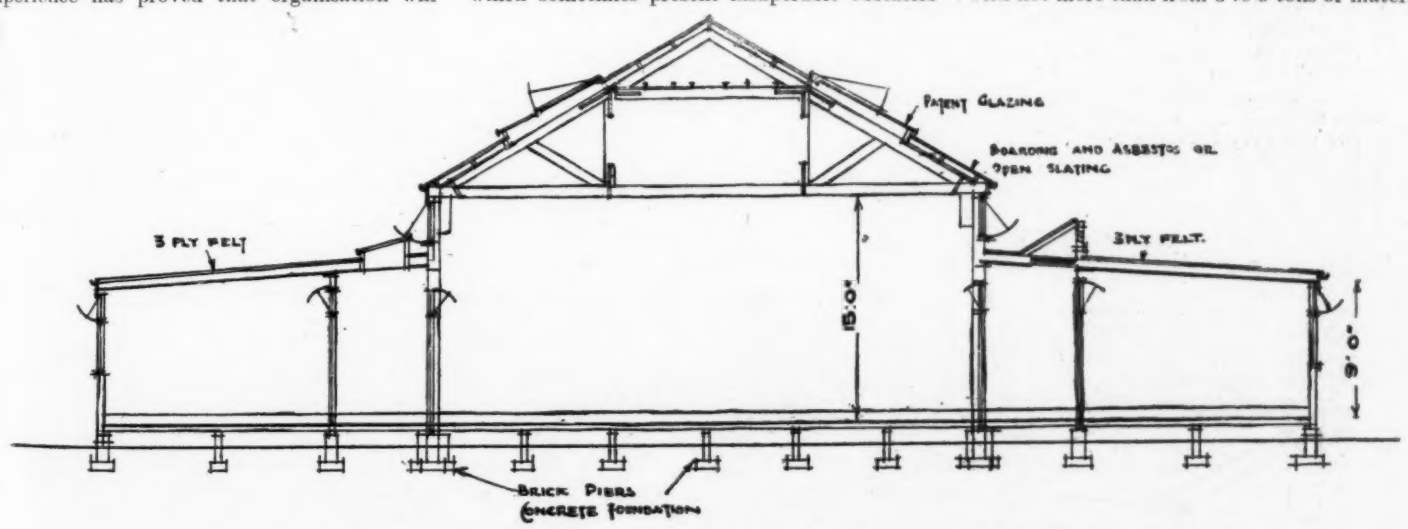
The first problem that presents itself for solution, therefore, is not one of planning or construction, but of transport. The primary consideration is speed, and this factor must often over-rule all others in importance. Experience has proved that organisation will play a leading part, both in economy and in rapidity of erection. Organisation and transport are closely allied, and are therefore the two factors which will first receive consideration.

Many points will be found to affect the decision that is to be made as to the best means of delivering men and material, but for practical purposes they may be summarised under the following heads:—

1. The distance of the site from the nearest railway.
2. The nature of the intervening ground.
3. The size of the building programme.
4. The nature of the roads.

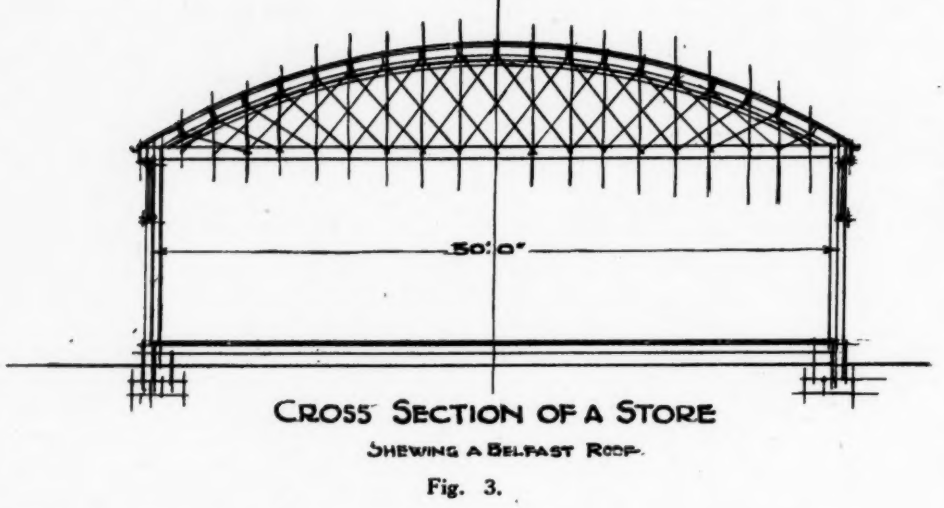
1. In dealing with large schemes a railway should *primâ facie* be considered a necessity. If the building is less than 2 miles from the nearest siding, and the intervening ground is fairly level, no hesitation need be felt in incurring the capital expenditure which will be involved. When complete, the railway needs far less attention than road transport, and is very much cheaper; but apart altogether from these considerations are other factors which sometimes present insuperable obstacles to road haulage and render a railway a necessity. The first is the increasing difficulty that is experienced in obtaining steam wagons or motor lorries. Broadly speaking, they are unobtainable upon a large scale in districts far removed from ordinary trade centres. If road transport is employed it is furthermore necessary to keep to main roads, of which more will be written later. When the site is more than 2 miles from the main line connection, a railway may still be the most economical means of dealing with haulage; but the increasing initial cost becomes an item for serious consideration.

2. Great distance, coupled with hilly country, may be a strong argument in favour of road traction if the road surfaces are good. Gradients of more than 1 in 20 render a railway expensive and difficult to work, and often cause serious damage to locomotives, besides getting rapidly into bad condition in wet weather. Steeper gradients are not impossible, especially if they are short, and a 13-in. cylinder locomotive will carry about six or seven trucks up an incline of 1 in 11·5 if each truck is loaded with not more than from 3 to 5 tons of material.



CROSS SECTION OF AN OFFICE BUILDING.

Fig. 2.



CROSS SECTION OF A STORE
SHEWING A BELFAST ROOF.

Fig. 3.

It follows that, if a railway is to be constructed with a maximum gradient of 1 in 20, hills will necessitate a large amount of excavation. Excavation is costly and slow, and labour of any kind, especially navvy labour, is now exceeding scarce.

3. Apart from initial cost, rail haulage is considerably cheaper than road haulage, and if the total quantity of material is sufficiently large the railway will pay for itself many times over. The cost of the construction of a railway at the present moment, including material and labour, is about 30s. to £2 per yard run, allowing for a depth of about 1 ft. 6 in. of excavation. The cost of road haulage is about 1s. 3d. to 1s. 6d. per ton per mile, irrespective of the cost of road repairs. The cost of haulage upon a railway after it is completed is about 1s. per ton per mile, including shunting and delivery to sidings and spurs—one journey only to be measured in each case.

4. The nature of the roads is often the crux of the whole matter. Ordinary country roads built for light motor traffic are perfectly useless for steam wagons and heavy material. Frequently such roads have only a crust of 4 in. to 6 in. of macadam without any bottom, and break like thin ice under the weight of motor lorries loaded with building plant and material.

The condition to which a road can be reduced in a short time is inconceivable until it has been experienced; but after one or two cases of badly-smashed highways every effort is made to approach by rail, although large capital outlay may be involved.

The value of sleepers and rails as second-hand material is a point that should not be overlooked.

The next consideration in arranging the scheme is the level of the ground in various parts of the site. Speed demands that no time must be lost upon foundations, and unless a site is very flat a great amount of brickwork will be required for sleeper walls and concrete piers. The eye should not be trusted in such matters, and arrangements should be made to level the ground as soon as the position of the buildings is provisionally agreed. It is not uncommon to find, after pegging out, that the site for a building 200 ft. long falls 7 ft. in its length, although the maximum difference in level was judged to be about 2 ft.

After settling the site, some provision should be made for housing the men. Labour is scarce, many of the sites are very exposed, and if artizans and labourers arrive and find no provision made for them they can, and will, obtain work elsewhere. In most contracts special inducements are offered to the men over and above ordinary allowances. Such inducements take the form of free fires, cooking utensils, travelling allowances, etc. It will probably be necessary to advertise for labour, and some novel methods have been employed in this direction. One contractor utilised the screens of the picture palaces for miles around, and arranged for the display of a notice somewhat on these lines:—

ARTIZANS AND LABOURERS!
Come and help your country by building huts for housing the Army.

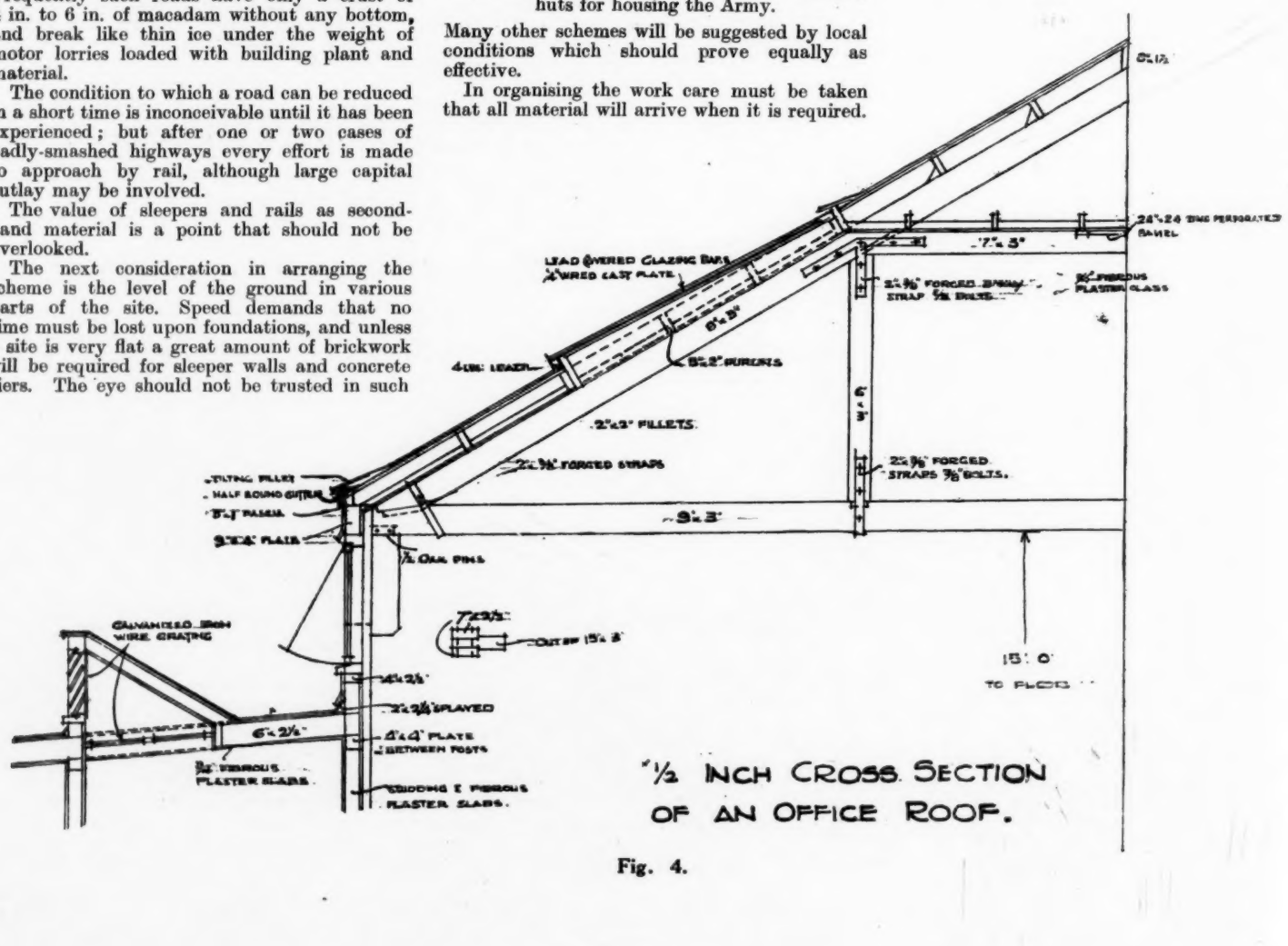
Many other schemes will be suggested by local conditions which should prove equally as effective.

In organising the work care must be taken that all material will arrive when it is required. Many contractors have not made due allowance for the shortage of supplies, for the congested state of the railways, and for the fact that ships are almost unobtainable. Contracts have been in consequence seriously delayed, and disorganisation has inevitably followed.

With regard to the type of building that is to be adopted, it should be borne in mind at the commencement of the work that all men who present themselves must be taken on and difficult setting out is therefore to be avoided.

Every building, and every portion of the building, must be plain and straightforward. As many repetitions as possible should be used, and types should not be varied unless there is special reason for doing so. This means that a minimum number of highly-skilled men is needed; the risk of mistakes is reduced to the greatest possible extent and economy is secured. Upon account of the lightness of construction, wind pressure assumes a position of greater importance than it ordinarily occupies, and it is therefore advisable to avoid high-pitched roofs and large spans. When, as is generally the case, timber construction is employed, large spans necessitate large scantlings, and baulk timber is both scarce and costly. The handling of beams upon the work also involves additional tackle and more men.

If large unobstructed areas are, however, desirable, the roof may be spanned either with a queen post or Belfast truss. A section of an office building, showing the former, is illustrated in Fig. 2. In this case, stiffness was attained by hipping the ends of the roof, as shown in elevation Fig. 1; and the employment of hips in such a manner is a justifiable expense. The individual members of the truss may be made much smaller than is customary on account of the lightness of the roofing material and the temporary nature of the building. The sizes given in Fig. 4 were used for a 35-ft. span. Lack of ventilation in top-lighted rooms is guarded against in the section shown in Fig. 2, additional light being also obtained by means of the clerestory windows. The low-pitched roofs over the corridor and side-rooms shown in this section consist of plain 6-in. by 2½-in. rafters, with 6-in. by 3-in.



½ INCH CROSS SECTION OF AN OFFICE ROOF.

Fig. 4.

trimmers to carry the roof lights. Small blocks are covered by a simple collar roof; wide span roofs over shell stores are frequently of the Belfast type, such as that shown in Fig. 3, which will be again referred to later.

The construction of the walls and roofs is a matter that has received much consideration, and experience has proved that wood-framing covered with weather-boarding or corrugated-iron is, as a rule, the cheapest and most rapid method of erection.

Other types of buildings are, however, more suitable for some purposes, and are enumerated below.

1. Buildings constructed of concrete blocks. These have given good results, but they are costly and cause delay. Before erection can be commenced a large number of machines must be brought to the site and a considerable amount of time and money must be spent upon foundations. Frosty weather prohibits progress altogether, and may destroy many of the blocks which are not thoroughly set. Further than this, a rough or uneven site will cause greater difficulty and expenditure than is the case with timber buildings. Upon the other hand, the building is more weather-proof, more equable in temperature, and will cost less for maintenance.

2. The second method that may be considered is the employment of steel framing, expanded metal lathing, and cement rendering. The chief difficulties that will be incurred are the delay and expense in obtaining delivery of the steel, the length of time occupied in fixing, and the necessity for the employment of highly-skilled labour.

It is only in comparatively rare cases that buildings of this type can be justified, but a variation has been employed by adopting timber framing, steel lathing, and cement rendering. This method is successful to some extent and produces a building of a semi-permanent character. It is, however, impossible to lay the cement in frosty weather, and defects frequently appear from the shrinkage of the studding, which causes the plaster to crack.

The cheapest and most usual type of building, as before stated, is constructed of wood studding covered with weather-boarding or corrugated-iron sheeting, and roofed either with boarding and felt open slates or asbestos tiles, or with corrugated-iron. Weather-boarding is cheaper than iron and is more easily obtained. Upon the other hand, iron makes a more weather-proof building, and the cost of black iron is not very greatly in excess of wood. Three-quarter-inch by ½-in. by 4-in. to 7-in. weather-boarding is sufficient for ordinary purposes; and 1¼-in. by ¾-in. rebated for more important structures or buildings which must be reasonably draught-proof, such as hospitals. The sides of the huts should be formed of 4-in. by 2-in. or 4-in. by 2½-in. studs, 4-in. by 4-in. angle posts, 4-in. by 3-in. plates, and 4-in. by 2-in. noggings. No timber larger than 4 in. in its smallest dimensions should be used, as all sizes above this must be sawn from baulk, causing delay and expense. Posts carrying large span roofs should be built up of smaller scantlings (see Figs. 2, 3 and 4). Thus, an 8-in. by 7-in. post for a 30-ft. to 40-ft. span would be built of 2 7-in. by 2½-in. and 1 7-in. by 3-in., bolted together with ⅝-in. bolts 1 ft. 6 in. apart, placed zigzag.

The roofs should be covered with ¾-in. rough boards and patent roofing felt. The construction is light and the various members of the trusses can be made correspondingly small. Dimensions are given in Fig. 4 for a queen post truss for a 35-ft. span. Spans greater than this should be covered by a Belfast roof, as shown in Fig. 3, which is a diagram correctly set out. The majority of these trusses shown in books are incorrect, and many of them would fail if an unexpected load were applied. The individual members of Belfast trusses are small, and can frequently be obtained from the off-cuts of other timber. The dimensions for a 40-ft. span are as follows:—Tie beam or bottom boom, Fig. 4, 8-in. by ¾-in. main rib; Fig. 4, 2-in. by 1½-in.; braces, 3 in. by ¾ in. or 3 in. by 1 in. The braces should run through the main rib, and should be spiked to the purlins, thus stiffening the truss and reducing the stress in the main rib.

The centre member of the posts supporting the trusses should be stopped short, and the tie beam should run through between the outside pieces, the whole being connected together by means of bolts. The bottom of the posts should be built into concrete or brick piers, and the plates well spiked to each side. These buildings are light, and high winds will lift off the roofs, or will raise the building bodily if the situation is exposed and they are not well secured.

The eaves of the roof should project well over the sides, and if economy is a primary consideration it is possible to dispense with eaves, gutters, and R.W.P.'s. The roofs should be felted with some well-known felt such as Anderson's, Engert & Rolfe's, McNeill's, Ruberoid, or the Willesden Waterproof Sheeting. Eaves gutters can be C.I. or made V-shape, and constructed of wood. The felt should be nailed over the edge of the boarding with galvanised-iron nails. Valley gutters can be laid in C.I. or lead, but, if the work is large enough to justify the carriage of asphalting plant and the employment of skilled men, asphalt gutters are more satisfactory. Felt gutters are never safe from the possibility of leakage, and most of them will not hold water if tested immediately after completion. If lead gutters or flashings are used, 4 lb. lead is sufficiently heavy for all purposes. It is cheaper to insert additional walls and piers and use small timber for the floors than it is to use large spans and correspondingly large binders or bridging joists.

If the foundations finish at ground level, concrete piers are cheapest and best, and the posts can be inserted in them after being coated with Solignum. Plates are carried on the top of the piers. If the floor of the building is far above ground, brick piers are preferable and cheaper. Those which carry the main posts should be constructed with a 4½-in. skin and 9-in. by 9-in. clear inside. The post is inserted in the centre of the space formed and packed around with concrete.

The finish, decoration, and cost of these buildings cannot be touched upon in so short a space, and attention has been confined therefore to the broad lines of the commencement of the work and general arrangement of the structure. It will be seen that speed and economy are the two essential features, and most other considerations must be sacrificed for the attainment of these points. The question of economy is, however, very wide, and does not consist of the adoption of a cheese-paring policy. Almost it might be said that the opposite is the case, and that true saving is effected by a comparatively lavish expenditure in organisation and preliminary work. Such expenditure, however, must be directed by knowledge and experience, and the speed of erection renders these qualities of inestimable value. In an ordinary building a mistake can be rectified, and becomes an incident. In war building a mistake is immediately magnified into a serious blunder.

A comparatively large amount of consideration should therefore be given to preliminary points until an intimate knowledge of new conditions has been obtained. If this is done, architect, builder, and owner will be saved a large amount of that anxiety which is an invariable attendant upon very rapid operations.

SCHOOL, WOOLACOMBE, DEVON.

The new County Council school which has been provided for the children of this little seaside resort and its neighbourhood has recently been opened. The school, which is situate on the left-hand side of the road approaching the village from the railway-station, is a building of local stone, faced with waterproofed cement, with a rough-cast finish, and having a slated roof. The site, comprising 1½ acres, is enclosed in an unclimbable iron fence. The school is divided into three classrooms, and is entered by a spacious corridor. The walls have been coloured with water paint, and the floors are of wood blocks. The building has cost £2,000. Mr. Morris (Architect to the County Education Authority) and Messrs. W. Slee & Sons, builders, of Barnstaple, have been responsible for building the school.

STEEL BARS FOR REINFORCED CONCRETE.

ONE object to be kept in view when designing structures of reinforced concrete is to prevent, or minimise, the cracking of surfaces exposed to tension. The employment of high-grade steel tension bars stressed only to a moderate degree is one of the best means to the desired end. If, instead of mild steel with an ultimate resistance of about 30 tons per square inch and an elastic modulus of 30,000,000 lb., we adopt a "medium" steel in which the foregoing figures are increased by one-third—ultimate resistance 40 tons and elastic modulus = 40,000,000 lb.—experience shows that cracks in the concrete rarely, if ever, occur, except when so minute as to be negligible, provided always that the working stress does not exceed that which is customary with mild steel, viz., 7 to 8 tons per sectional square inch.

It is characteristic of the above-named medium steel that bars of small diameter show a higher degree of strength per unit of sectional area than those of larger diameter. This is attributable to the fact that the smaller bars have undergone a greater amount of working in proportion to their size. We have, for example, found, in the course of some experimental tests, that ½-in. circular bars showed an ultimate tensile resistance of over 42 tons per sectional square inch, whereas ¾-in. bars of the same material showed a resistance of only 38 to 39 tons. Hence, in designing, it would be more economical to employ eleven ⅝-in. bars, with a combined ultimate resistance of 50·6 tons, than three ¾-in. bars, with a combined resistance of 50·7 tons. This would mean a saving of one ⅜-in. bar, or about 4½ lb. per foot run of bars; while the amount of surface available for the adhesion of concrete with the larger number of small-sized bars would be nearly doubled.

From numerous experiments upon mild steel bars we are unable to find any difference in strength per unit of sectional area between bars of small as compared with those of large diameter. The principal advantage of using mild steel arises, of course, from its extreme ductility. Thus, for example, we have found, from experiments upon mild steel, as much as 30 per cent. elongation in a length of 8 in.; whereas medium steel rarely shows more than 15 per cent. Nevertheless, in this latter material circular bars can be bent cold to any angle required in reinforced concrete construction.

It might seem superfluous to issue a word of caution as to the importance of ensuring that bars shall always be supplied of the sizes specified; but experience warns us of the necessity of constant vigilance in this respect. In one case we have found that bars supplied as nominally 1 in. square were actually only ⅞ in. square. This means a deficiency of nearly 25 per cent. in sectional area. In round bars we have occasionally found even more serious shortages in diameter. Thus, bars nominally ¾ in. were, in one case, found to be 25 per cent. less, which means a reduction of 44 per cent. on the sectional area; and such a bar, if nominally stressed to 8 tons, would be actually stressed to over 14 tons per sectional square inch. Such extreme cases are, of course, exceptional.

Much has been said and written in favour of an indented form for tension bars. It may be observed that, in the case of an ordinary unindented bar, the resistance to displacement by drawing out arises from the adhesion of the concrete to the steel. In an indented bar the resistance is due to the cohesive strength of the concrete between the unindented portions of the bar. We have heard it suggested that, since the resistance in either case is to be overcome by shearing, there is practically no difference between the two forms of bar. We would point out that in the case of an ordinary bar the shearing would take place upon a straight joint between two different materials, whereas in an indented bar it would be through an irregularly bonded material. In either case we have little absolute data for our guidance. Perhaps some readers of this journal can throw some light upon the question from their own experience.

Q. E. D.

KING WILLIAM-STREET.

THE transformation of this street has been very rapid. Beginning with the end next the Mansion House, first came the imposing block for the Scottish Union and Provident Association, by Messrs. Dunn & Watson, now to be extended as far as St. Swithin's-lane, over the site of the old Gresham Club, which is to be rebuilt in Abchurch-lane. Going southwards on this side we have the austere little corner building of the Clerical Medical and General Insurance Company. Next comes the only gap in the line at the corner of Sherborne-lane. This corner, not being in the same ownership, may remain in its present state for many years. The next block up to Abchurch-lane contains the fine new offices of the Phœnix Assurance Company, by Messrs. Macvicar Anderson & Son.* Following this up to Nicholas-lane, we have the new premises of the Comptoir National d'Escompte de Paris, now being built. It is a pity this site is of such an awkward shape, but the powers of the Corporation in the days when King William-street was formed were limited, when only properties immediately infringing on the new street could be acquired, thus forming very irregular sites. This difficulty has been overcome in the next block by an arrangement whereby the City Lands Committee acquired adjoining lands upon the assurance that a lessee was forthcoming for the new site when so made. This island site will be one of the most prominent and valuable positions in the City. The war has temporarily delayed its development.

On the other side of the street the whole of the rounded corner facing London Bridge will probably be rebuilt. The portion in Gracechurch-street belonging to the City Lands Committee was let to Mr. Howell Williams, who intends to erect a large block of commercial offices. Adjoining it is a block in which the leases expire in about two years. At the corner of Clement-lane the Norwich Union has erected a small branch office. Proceeding north, on the site of the old London and Lancashire Offices will be shortly erected a new block of offices by Messrs. Trehearne & Norman upon an enlarged area formed by the acquisition of the back property.

At the corner of Nicholas-lane a small building is in course of erection by Messrs. Metcalf & Greig.

This side of the street was partly rebuilt about 1880, and no more leases will fall in now for many years. The only other change since the street was formed is that which was caused by the building of the Bank Station of the City and South London Railway under the church of St Mary Woolnoth.

The new aspect of the street, although not perhaps so dignified and reticent as the old, will nevertheless be as fine as any in the City. The old heights are increased, and will now give a street of equal width and height. This is the inevitable result of the Building Act Regulations and our ancient light conventions. In our view it is a proportion less satisfactory than an excess in either direction would give. The best results are got when the buildings either do not exceed three-quarters of the width or are allowed to go up to one and a half times the width. We might learn a good deal from the American and Continental rules about heights of buildings, and the next revision of the Act should certainly deal with this point.

NEW ALTAR FOR CHURCH AT KELSO.

A new high altar has been erected in the church at Kelso, Roxburghshire. The altar, which was designed by Mr. Archibald Macpherson, F.R.I.B.A., is built of Swinton stone, with a baldachino of Spanish mahogany.

A NEW CALENDAR.

We have received from Messrs. F. Troy & Co., builders, decorators, and electrical engineers, 194 and 196, Finchley-road, N.W., a neat little calendar for 1916 which shows an excellent colour reproduction of the picture entitled "Every Little Helps," by A. W. Strutt, R.C.A., A.R.E., with a monthly calendar attached below.

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* See our issue for January 7.

REINFORCED CONCRETE.

WE have received the following letter in reference to the paper by Mr. Kearns, read before the Surveyors' Institution recently, and reported in our last issue:—

SIR,—In the report of the paper read by Mr. R. Kearns, before the Surveyors' Institution, which is included in your last issue, you state that Mr. Kearns made allusions to the New Cathedral at Demerara (which is now being constructed to the designs of Mr. Leonard Stokes, upon the Considère system of construction), and also ask whether there is any cause why the rods in beams should not be made larger in section and fewer in number.

You will probably receive letters from other correspondents, giving the reasons against this proposal, but, in case you do not, it may be useful to point them out as concisely as possible.

In reinforced concrete the tensile stress in the steel bars is only transmitted to them through the medium of the concrete, and this transmission of stress is only possible on account of the adhesion of the concrete to the steel.

Since the area of a round bar varies as the square of the diameter, whereas the perimeter is only directly proportional to it, it is obvious that, for any given sectional area, the largest adhesive surface will be obtained by putting in a number of bars of as small diameter as possible. The new London County Council Regulations are stringent on this point, and will control the diameters of bars pretty effectively.

With bars of large size and few in number there is no possibility of their full tensile value being developed, as they would undoubtedly slip before their full strength was realised. The possibility of slipping can, of course, be guarded against by the introduction of the Considère hook at the ends of the bar (as suggested by the London County Council Regulations), but in good design it is better to regard this hook as offering additional security, and not to count upon it in the first instance as assisting in the transmission of stress from the concrete to the steel. As the adhesion may be regarded as constant throughout the length of the bar it is only the increment of strength per unit length which has to be transmitted from the concrete to the steel, whereas, if there was no adhesion and the bars were only held by the hooks at the end, the tensile force would be constant to the end of the bar, and the whole of the anchoring would have to be done by the hook.

This would be rather analogous to placing one huge rivet at each end in building a girder, instead of a number of small rivets spaced along the entire length of the plate.

CONSIDÈRE CONSTRUCTION COMPANY, LTD.
(Herbert E. Steinberg).

CONSTRUCTION NOTE.

Grain Elevator Plant, South Chicago.

THE John S. Metcalf Company, Ltd., Southampton-street, Strand, London, W.C., has recently been retained by the Chicago and North-Western Railway Company to act as designing and consulting engineers for their new grain elevator plant at South Chicago. This plant will be operated by the Armour Grain Company. It comprises a working house of a million bushels capacity, with facilities for receiving grain at the rate of 360 cars in ten hours and shipping to cars at the same rate. At the same time it will be arranged to dry 90,000 bushels of grain and bleach 240,000 bushels of oats in ten hours, besides enormous clipping and cleaning capacities. There will be a marine tower for receiving from vessels at the rate of 20,000 bushels per hour, and a river house equipped to ship to boats at the rate of 120,000 bushels of grain per hour, and with a shipping gallery to carry grain out along the wharf for trimming the vessels after they have received the bulk of their load at the river house. Between the working house and the river house there will be a storage house, which will bring the ultimate storage capacity of the plant to approximately 10,000,000 bushels. All the machinery will be electrically driven, deriving power from a complete independent power plant of 4,700 horse-power. Water tube boilers and turbo-generators will be used. Complete facilities will be provided for collecting the dust caused by the handling and cleaning of the grain and for sacking this dust or loading in bulk. An independent office building for convenience of the operators, a welfare building for employees, a shop building, and 1,200 ft. of wharf are also included in the work. The headquarters of the John S. Metcalf Company, Ltd., is in Montreal, Canada, with branches in London and Chicago.

ARCHITECTURAL SOCIETIES.

Nottingham and Derby Architectural Society.

The second meeting of the winter session of this Society was held at the Society's room on the 11th inst. Mr. F. M. Royle, the Hon. Secretary, informed those present that a Christmas greeting had been sent on behalf of the Society to each of the twenty-six members on active service, to which the President and Vice-President had added a box of cigarettes. He had received very interesting replies, thanking the members for their kind wishes. The President proposed that a selection of the letters might be made and printed in the next annual Report, and this suggestion was agreed to.

After the disposal of other business the members adjourned to the lecture-room, where the Rev. F. N. Heazell, M.A., F.R.G.S., delivered a lecture on "Baalbeck and Damascus," which he illustrated by a number of lantern slides, mostly prepared from photographs taken by himself. He stated that Baalbeck is reached from Aleppo by a railway journey of eleven hours. The chief object of interest is the ruins of the great Temple of the Sun. In the time of the Roman Emperors, Baalbeck was the central point of an Oriental form of worship which had existed from very early times. The ruins are entered by a modern flight of steps, which lead to the propylæa, and this admits to the hexagonal forecourt by means of three gates. Through the western gateway of the forecourt the Great Court—450 ft. by 400 ft.—is reached, surrounded on three sides by double rows of columns, while in the centre are the great altar of burnt offerings and the basins of lustration. On the fourth side of the court a great flight of steps led up to the front of the Temple of the Sun, a building 290 ft. long by 160 ft. wide, having a peristyle of fifty-four columns. Only six of these columns of a debased type of the Corinthian Order, and the bases only of many more, now remain. A short distance from this temple stands the Temple of Bacchus, perhaps the finest building in anything like a fair state of preservation in Syria and Palestine. The main entrance doorway is beautifully carved, but nothing of the roof remains. These wonderful buildings were probably erected by Antonius Pius between A.D. 130 and 160. The Emperor Theodosius built a Christian church within the Great Court in the fourth century, while another part of the buildings has been used for Moslem worship.

The lecturer then showed views and gave a description of Damascus, which has been called the oldest city in the world—the oldest city, that is, that has maintained a continuous existence from the days of its foundation until the present time.

At the close the Vice-President, Mr. H. G. Watkins, proposed and Mr. E. R. Sutton, Past-President, seconded a vote of thanks to the lecturer for his interesting paper. The Rev. F. N. Heazell suitably replied, and the meeting terminated.

OBITUARY.

Mr. E. Clark.

The death is announced of Mr. Edwin Clark, principal of a firm of builders, at Fishponds, Bristol, who have been contractors for various chapels erected in and around the city.

Mr. J. P. Sharp.

Mr. J. P. Sharp, a Birmingham architect, of County-chambers, has died at his Moseley residence. He designed a good many Birmingham buildings and took a leading part in the development and construction of Corporation-street.

THE BUILDING TRADE.

THE TIMBER TRADE.

MESSRS. FOY, MORGAN, & CO. have issued their annual Report, which contains some very interesting statistics. The imports into the United Kingdom and their value are for the last six years as under :—

1910	10,078,088 loads	£26,198,854
1911	9,740,436 ,, ...	25,847,077
1912	10,058,384 ,, ...	28,351,315
1913	11,589,811 ,, ...	33,789,353
1914	8,432,646 ,, ...	25,836,950
1915	7,665,524 ,, ...	32,778,764

The imports of soft woods sawn and planed, with which portion of the import the building trades are almost exclusively concerned, have been practically the same as in the previous year. As the war has now affected two shipping seasons, it is a matter for congratulation that the imports stand at within 20 per cent. of previous figures. The Board of Trade have suppressed certain figures relating to timber used for Government purposes, so the figures are vitiated to that extent. A fair estimate of the proportion in which the £7,000,000 extra paid for the same quantity of wood imported would be to put down £2,000,000 as the extra price paid, and £5,000,000 for extra shipping charges.

The fluctuations of the freight rates in the average import cost per standard year by year and the influence of high freights are shown in the following figures :—

	£ s. d.		£ s. d.
1907	9 11 0	1912	9 18 3
1908	8 16 6	1913	10 9 3
1909	9 0 3	1914	10 13 0
1910	9 9 3	1915	15 11 0
1911	9 9 0		

Russia, after steadily gaining on all competitors since 1901, when she first took the lead, has now dropped to a position of minor importance. In the year prior to the war Russian imports represented more than half the total import, but during the last season she has not even imported one-fifth of the total.

The following table of figures shows the stock of wood in the London public docks at the end of each year :—

PUBLIC DOCK STOCK ON DECEMBER 31.

		1913.	1914.	1915.
Deals (Fir)	Pieces	1,641,245	906,520	919,803
Battens (Fir)	,, ...	2,255,876	1,240,190	1,871,899
Pine	,, ...	596.825	498,613	421,276
Spruce	,, ...	883.158	687,709	1,181,476
Pitch-Pine Deals	,, ...	86,410	49,292	21,822
Deals and Battens in aggregate ...	,, ...	5,463,514	3,382,324	4,416,276
Rough Boards	,, ...	8,303,439	7,247,857	7,895,545
Planed Boards	,, ...	4,382,952	4,622,989	4,128,150
Floated Timber	Loads	27,000	26,500	6,402

The following are the statistics of consumption within the London district :—

DELIVERIES OVERSIDE IN THE FOLLOWING YEARS.

	1913.	1914.	1915.
Sawn Deals, etc.	158,858	167,306	165,941
Planed Boards	28,433	38,582	35,518

DELIVERIES FROM THE DOCKS IN THE FOLLOWING YEARS.

(In Cubic Measurement.)

	1913.	1914.	1915.
Sawn Deals, etc.	91,763	98,855	87,288
Planed Boards	26,010	28,139	29,309
Floated Timber	33,582	41,936	34,420

The More Important Items in Pieces.

	1913.	1914.	1915.
Deals (Fir)	2,321,366	2,450,212	1,625,510
Battens (Fir)	4,138,448	4,024,081	3,858,427
Pine	340,193	320,284	412,328
Spruce	544,725	758,671	866,624
Pitch-Pine Planks	45,486	83,867	55,449
Deals and Battens in aggregate	7,390,218	7,637,115	6,818,338

ANNUAL IMPORT INTO LONDON, JANUARY 1 TO DECEMBER 31.

		1913.	1914.	1915.
Deals (Fir)	Pieces	6,712,627	5,883,214	4,380,565
Battens (Fir)	,, ...	11,103,925	9,635,430	12,940,114
Pine	,, ...	926,333	854,484	1,124,884
Spruce	,, ...	1,805,407	1,975,316	3,225,041
Pitch-Pine Deals*	,, ...	109,913	46,749	27,979
Deals and Battens in aggregate ...	,, ...	20,687,805	18,395,193	21,698,583
Rough Boards	,, ...	24,779,607	21,431,356	20,865,666
Planed Boards	,, ...	16,791,787	21,629,798	20,583,624
Floated Timber	Loads	44,973	40,682	13,707

* The Pitch-Pine import excludes any delivered overside.

RATIO OF IMPORT TO CONSUMPTION (DOCK AND OVERSIDE) IN THE FOLLOWING YEARS.

	1913. Per Cent.	1914. Per Cent.	1915. Per Cent.
Deals (Fir)	106	89	92
Battens (Fir)	98	89	115
Pine	103	99	93
Spruce	121	97	127
Pitch-Pine Planks (*Dock only*)	242	56	50
Deals and Battens in aggregate	103	90	110
Rough Boards	117	92	102
Planed Boards	93	100	97
Floated Timber	134	99	41

The trade as far as hardwoods are concerned is of less interest to the building industry, but we may mention that the decrease in the year's imports of mahogany amounted to 73 per cent. as compared with 1914, and the imports of other hardwoods used in cabinet-making and decorative work showed similar reductions. Teak imports, on the other hand, only fell off some 10 per cent. as compared with those of the previous year.

PROPOSED NEW BUILDINGS AND OTHER WORKS.*

IN these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works, at the time of publication, have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; L.G.B. for Local Government Board; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

Aberdeen.—The T.C. has approved plans of two dwelling-houses, each for two tenants, one dwelling-house for four tenants, and additions to engineering works and comb works.

Abergavenny.—At a recent meeting of the B.G. the Clerk suggested that the Guardians should take steps towards the appointment of an architect for the proposed new workhouse, and it was decided to ask the opinion of the L.G.B. on the matter.

Aldershot.—Plans passed by the D.C.:—Alterations and additions, 22, Station-road, Mr. John Eighteen; reconstruction of premises, Redan-hill, Messrs. R. Bateman & Sons.

Barrow.—The T.C. has approved of an application received from the Salvation Army authorities in connection with a proposed enlargement of the Salvation Army War Workers' Hostel. The T.C. has approved a perspective elevation of the Labour Exchange Building, Duke-street, submitted by H.M. Office of Works.

Bath.—The War Office has been requested to erect the building required for the sub-station at the Bath War Hospital.

Bletchley.—The U.D.C. has passed plans for a garage in High-street for Mr. Jacobs.

Bournemouth.—Plans passed by the B.C.:—Additions, Capital and Counties Bank, Old Christchurch-road, the Capital and Counties Banking Company; additions, 402 and 404, Holdenhurst-road, the Parkstone and Bournemouth Co-operative Society; alterations, "The Dunes," Southern-road, the Rev. C. W. Lloyd Evans; alterations, "Morningside," Bay View-road, Mr. G. Grant; alterations to stables, Castle Laundry, Castle-road, Mr. R. Bevington; alterations to stables, rear of "Aysgarth," Poole-road, Mr. C. Williams; amended plan of house, site 43, Montagu-road, Mr. H. B. Mudge; covering for vans, etc., Victoria-road, Mr. C. W. Powell; motor house, site 215, Dunbar-road, Messrs. Jones & Seward; additions to garage, Nos. 1 and 3, Parker-road, Mr. T. Dean; alterations, "Albany Hotel," Holdenhurst-road, Mr. F. J. Hall; additions, Grosvenor garage, Poole-hill, the Grosvenor Garage Company; amended plan of house, plot 180, Keswick-road, Mr. R. Collins; bungalow, plot 4, Watcombe-road, Mr. W. Chadwick; motor house, etc., plot 19, Wentworth-avenue, Mr. J. Newbury; house, Cecil-avenue, Mr. H. V. Eastwell; garage, plot 51, Wentworth-avenue, Messrs. Burridge & Bovil; house, stabling, corner East-avenue and Berwick-road, Mr. J. Kingham; house, plot 73, Chessel-avenue, Mr. J. S. Brown.

Bromsgrove.—The L.G.B. has finally approved the Rubery town-planning scheme promoted by the North Bromsgrove U.D.C.

Burton-on-Trent.—At a recent meeting of the T.C. it was announced that an important firm had purchased a site of 50 acres of land at Horninglow, for the establishment of works, and that building operations would shortly commence.

Calcutta.—We learn that work is to be started almost immediately with the building of the hospital for tropical diseases, which is to form an annexe to the School of Tropical Medicine in Calcutta.

Cardiff.—The hospital authorities announce an anonymous gift of £10,500 to King Edward's Hospital, Cardiff, towards the cost of new extensions.

* See also our list of Competitions, Contracts, etc., on page 78.

Colombia.—The *Diario Oficial* (Bogotá) of November 10 last publishes a law empowering the "Junta Central de Higiene" to undertake the construction of a sanitary station in the port of Buenaventura similar to the existing station at Santa Marta. The same law also allots the sum of 10,000 pesos gold (£2,000) for the completion of sanitary buildings, for the bacteriological laboratory, and for the construction of a wharf at the sanitary station of Santa Marta.

Cupar.—The heritors have agreed to execute certain structural and other improvements to the manse at a total cost of about £260. Mr. Charles Storrar, architect, has the work in hand.

Deemount.—The Aberdeen T.C. has had under consideration the proposed erection of a number of houses on the garden colony system at Deemount.

Dewsbury.—Plans passed by the T.C.:—Water tower at Jilling Ing Mills, Earlsheaton, for Messrs. S. Lyles, Sons, & Co., Ltd.; additions to Wire Works, Mill-street East, Savile Town, for Messrs. H. Spencer & Co.

Folkestone.—Plans passed by the T.C.:—Plans submitted by the Hon. Miss F. Daly (owner) (Mr. C. D. Jenner, architect, Mr. C. Jenner, builder) for a temporary recreation-room at Manor House Hospital, Earl's-avenue; plans submitted by Mrs. P. W. Apps (owner) (Mr. G. H. Camburn, architect) for alterations and additions at Pleydell House, Bouverie-road West.

Girvan.—The Burgh Surveyor has submitted a report on the present water works and schemes for the extension of the water supply, with relative plans, etc. The Council has visited the Balceachie district, and inspected the site of the proposed new reservoir, and has also visited Glendoune burn with a view of ascertaining if a supply of water could be got there.

Glasgow.—Glasgow Dean of Guild Court has granted the following linings:—The North British Railway Company, to convert into general offices the building known as the Royal Hotel in George-square; Messrs. William Cooper & Nephews, chemical manufacturers, Lochburn, Maryhill, to erect buildings for offices, workers' block, pump-house, mechanics' shop, laboratory, joiners' shop, etc., at Lochburn; Mr. James Howden's trustees, to erect a boatbuilding shed at 685, South-street, Whiteinch.

Greenock.—The Corporation has decided to erect over a hundred cottage houses for workers at the east end of the town, estimated to cost £35,000.

Hexham.—The U.D.C. has approved a plan submitted by Mr. M. Hall, on behalf of Mr. J. Hutchinson, for a cartshed to be erected at New Court, Priestpopple.

Holmfirth.—The Holmfirth Council is preparing to begin its housing scheme, which provides for building on Newmill-road twelve houses at £250 each and thirty at £230 each.

Huntingdon.—The T.C. is considering plans of the proposed refuse destructor.

Jarrow.—The Palmer Shipbuilding and Iron Company propose to build a quay, 500 ft. long, from the Corporation Quay westwards.

Leyland.—The U.D.C. has passed a plan of proposed boiler-house and chimney for Wood Milnes, Ltd.

Longniddry.—The Scottish Veterans' Garden City Association has accepted the offer of ground at Longniddry as a site for the local Garden City scheme. The consulting architect stated that the first section, which might now be proceeded with, would embrace forty houses and two workshops, and extension could take place later.

Matlock.—The Urban Council has adopted the scheme for providing a water supply to the district of Riber, by means of a windmill, etc.

Mitcham.—The U.D.C. has approved the following plans for new buildings:—Mr. J. Wilson, two dwelling-houses, Ashbourne-road; Mitcham Margarine Company, additions to Woodite Works Factory, Commonside East; Mr. A. L. Lambert, motor garage, 18, Garden-avenue; alterations at Messrs. T. Parsons & Sons.

New Mills.—The Council's seal has been affixed to a plan of proposed new stables for Messrs. R. Wilson & Co. on Buxton-road.

Oldbury.—The U.D.C. has approved of the following building plan:—Mr. W. Dearn, conversion of one house into two, Clay-lane, Langley.

Penmore.—The L.G.B. has now given its sanction to the borrowing by the Derbyshire C.C. of the following amounts in respect of the extension of the Penmore Isolation Hospital:—£4,790 for thirty years for new buildings; £945 for ten years for furniture, fittings, boundary walls, fencing, etc.

Prudhoe.—The plans for the housing scheme, in accordance with the suggestions of the L.G.B., have been approved by the Council.

St. Annes (Lancs).—The question of the erection of a floral hall in the Ashton Gardens is under consideration by the Council.

Sheffield.—Sheffield is suffering from a very real housing famine, caused by the influx of munition workers, and the civic authorities are doing their best to tackle the problem. The City Council has just adopted a scheme for the erection of permanent and temporary homes and hostels at a cost of about £300,000. Over 260 permanent houses are to be built at once on estates owned by the municipality, and temporary houses, hostels, and colony blocks which will accommodate 4,631 workers, at a cost of nearly £200,000.

Skegness.—Plans have now been prepared by Mr. Percy Houfton, of Chesterfield, for the Derbyshire Miners' Convalescent Home at Skegness. A site for the proposed home has been secured at the extreme northern end of Skegness, approached by a short length of road from Roman Bank.

Stonehaven.—Plans for the erection of several semi-detached villas in Victoria-street have been before the T.C.

Swansea.—Another big cinema enterprise is being mooted in Swansea. The building is estimated to cost between £5,000 and £7,000. The site is off High-street.

Ulverston.—The U.D.C. has approved plans of two pairs of semi-detached villas in King's-road.

Watford.—The following plans have been recommended to the U.D.C. for approval:—New shop and premises, next to 116, High-street, for Messrs. Bottom Bros.; temporary chemical factory for the Cooper Laboratory for Economic Research, Rickmansworth-road.

West Hartlepool.—The T.C. has approved the following plan:—Mr. W. Kirby, motor garage, Stockton-road and Blakelock-road, as a temporary building. The T.C. has received a notification from the North-Eastern Railway Company, with plan, of their intention to improve the Burn-road sidings. Plan and estimate for the construction of Back Percy-street and Bellerby-terrace and Ashley-gardens have been approved by the T.C.

Wick.—Wick Harbour Trust has received intimation that the Commissioners of the Treasury have recommended an advance from the Development Fund to the Trustees of a sum not exceeding £31,260 for the execution of works. The specified works include the preservation of the existing works, and particularly the repair of the south quay and the restoration of the damaged north side of the river.

Woolwich.—The justices have given consent to alterations in respect of the Royal Ordnance Arms beerhouse, Ordnance-road, Woolwich, and the Fox-under-the-Hill, Shooter's Hill-road.

GENERAL BUILDING NEWS.

CHURCH, STONEYCROFT.

The new church of St. Paul, Stoneycroft, has recently been consecrated by the Lord Bishop of Liverpool. The church has been erected on a site at the corner of Derby-lane and Derwent-road. The first stone of the old St. Paul's Church was laid on April 4, 1763. The new St. Paul's Church has been designed by Mr. Gilbert Scott, the architect of the Liverpool Cathedral. The building is of grey brick, specially made at Ruabon for this work, and is roofed with red tiles. The walls are plastered, with brick drawings, and there is a panelling of wood all round. The aisles are laid in grey and white tiles, and the seating consists of rush-bottomed chairs arranged on a flooring of wooden blocks.

GOLF CLUBHOUSE, FURNESS.

The new club house which has been erected for the Furness Golf Club has recently been opened. The building is situated on a site overlooking the Irish Sea, at the junction of Moor Tarn-lane and the new road at present being made from the end of Walney Bridge. On the ground floor there is a spacious hall, from which open the following rooms:—Gentlemen's locker-room, smoking-room, lavatory, secretary's office, ladies' locker-room, ladies' private room, and ladies' lavatory. On the first floor is situated an upper hall, from which opens a large luncheon-room. The club-kitchen, pantry, and caretaker's house are also situated on this floor, and a large balcony opens out from the luncheon-room. The building, which is heated throughout by a hot-water system, is built of brick and rough-casted. The contractors for the whole of the building are Messrs. Rainey Brothers, and for the furnishings, Messrs. Hampton & Sons, London; the architect being Mr. Arthur H. Taylor, Walney.

TRADE NEWS.

Under the direction of Messrs. Hyams & Hobgen, architects, Paignton, Boyle's latest patent "air-pump" ventilator has been applied to Deller's New Café, Exeter.

We hear that the Board of Public Works have been making extensions to the G.P.O., Dublin, and that the powder "Pudlo" has been used for making some of the cement watertight.

The premises of the Publisher's Waste Company, Manchester, are being warmed by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

NEW COMPANIES.

THE undermentioned particulars of new companies recently registered are taken from the Daily Register compiled by Messrs. Jordan & Sons, Ltd., Company Registration Agents, Chancery-lane, W.C.

H. & J. MATTHEWS, LTD. (142,552), Castle-street, Berkhamsted, Hertford. Registered December 29. To acquire, take over, and to carry on the business now carried on by H. & J. Matthews as H. & J. Matthews at Berkhamsted, Hertford, and to carry on business of contractors joiners, builders, wheelwrights, smiths, hot water engineers, coal merchants, brick makers, and stone merchants, electrical engineers, etc. Nominal capital, £5,000 in 5,000 £1 Ordinary shares.

THOMAS SMITH & SON, LTD. (142,587). Registered December 31. To carry on business of manufacturers of oil-colour paint, whitelead, enamel, and varnish, colour grinders, timber, lime, and cement merchants, gas, electrical, mechanical, and sanitary engineers, builders, shippers, wharfingers, warehousemen, etc Nominal capital, £25,000 in 2,500 £10 shares.

C. A. VANDERVELL & Co., LTD. (142,593), Warple Way, Acton Vale. Registered January 1. To carry on business of electrical engineers, manufacturers of dynamos, lighting equipments, accumulators and other motor accessories, and Government contractors, now carried on by C. A. Vandervell at above address, and to carry on business of iron and steel converters, builders, etc. Nominal capital, £350,000 in 300,000 £1 ordinary shares, and 1,000,000 1s. deferred shares.

COLLINSON & Co., LTD. (142,604), 56, Walpole-road, Teddington. Registered January 3. To carry on business of builders, decorators, workers in and manufacturers of machinery of all kinds, tools, iron, steel, and other metals, contractors, dealers in stone, lime, sand, bricks, and other building requisites, electrical engineers, dealers in motor-cars, etc. Nominal capital, £2,500 in 2,500 £1 ordinary shares.

ISAAC WARD, LTD. (142,607), Progress Works, Byrern-street, Blackburn. Registered January 3. To acquire from S. Ward, of Blackburn, and carry on business now carried on by him at Blackburn, as Isaac Ward, business of general mill furnishers, manufacturers of appliances and plant in connection therewith, ironmongers, engineers, brass and iron founders, builders, plumbers, gasfitters, and lighting engineers, designers, etc. Nominal capital, £1,000 in 1,000 £1 shares.

J. F. GOODWILLIE, LTD. (142,628). Registered January 5. To acquire and take over business of timber merchant and cooper carried on by S. H. Goodwillie at St. Matthew's Wharf and Mount Pleasant, and 40, North-street, Gosport, Hants, as J. F. Goodwillie, and to carry on business of builders, contractors, painters, manufacturers of bricks, tiles, pottery, earthenware, terra-cotta, china, etc. Nominal capital, £5,000 in 5,000 £1 ordinary shares.

HENRY ALLEN, LTD. (142,638), 101, Amhurst-road, Hackney, N.E. Registered January 6. To carry on business of cartage contractors, builders, builders' merchants, excavators, dealers in agricultural and horticultural requirements, produce and horses. Nominal capital, £5,000 in 5,000 £1 shares.

SIR JOHN GUNN & Co., LTD. (142,640). Registered January 6. To carry on trade of coal, coke, and fuel exporters and merchants, factories and colliery owners, quarrymen, and brickmakers, builders, dealers in ships, barges, and craft of all kinds, insurers, carriers, etc. Nominal capital, £50,000 in 500 £100 shares.

J. LORD, LTD. (142,650), 40, St. Peter's-gate, Stockport. Registered January 7. To carry on business of furnace makers and dealers, makers of materials required in said business, iron founders, mechanical engineers, toolmakers, brass founders, builders, painters, etc. Nominal capital, £2,000 in 2,000 £1 shares.

ROWELL, LTD. (142,653), Woodside, Wrekenton, Gateshead, Durham. Registered January 7. To carry on business of property owners, builders and contractors, house and estate agents, and any other trade in connection therewith. Nominal capital, £5,000 in 350 £10 ordinary shares and 300 £5 preference shares.

FOREIGN AND COLONIAL.

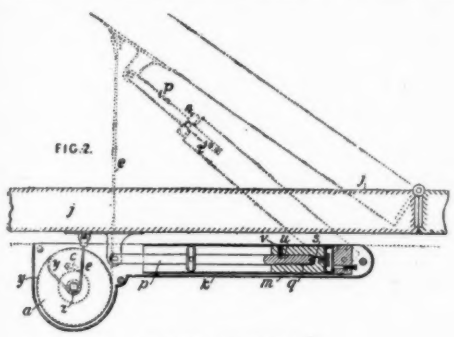
Catalogues and Price Lists of British Goods for China.

H.M. Commercial Attaché at Peking (Mr. W. P. Ker, C.M.G.) reports that the Chinese Ministry of Agriculture and Commerce have recently established a Commercial and Industrial Commission whose object is the collection of statistics and the development of trade in China, and that this Commission desires to receive copies of catalogues issued by United Kingdom manufacturers. United Kingdom manufacturers and exporters of United Kingdom goods who may be interested should address catalogues and price lists of their goods to the Commercial and Industrial Commission, Ministry of Agriculture and Commerce, Peking.

SELECTED PATENTS.

17,376 of 1914.—Percy Alliott Smithurst: Door springs and checks.

This relates to a combined spring door-closer and piston check, in which the spring drum a is provided with a groove y, either in the form of a fusee or a cylindrical helix, and in which the cord e attached to the door j is wound, the groove having a sudden cut-off so that extra force is applied to overcome the resistance of the latch. The groove y leaves the surface of the drum at y^1, and the

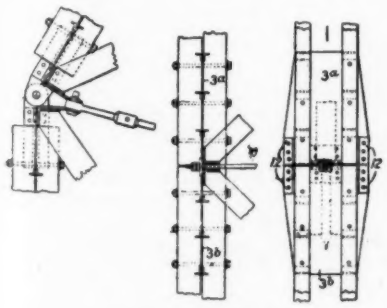


17,376 of 1914.

cord e then winds on a drum z of smaller diameter. The piston m operates in a pivoted cylinder k, and has a lost-motion connection v, u with the piston-rod p, so that air can enter the cylinder through the slot q and the passage s when the piston is moving out. A blade spring 2 may be provided on the cylinder to engage an adjustable disc 4 on the piston-rod to hold the door open. The cord may be detached from the door so that the check alone is in operation.

17,395 of 1914.—Ballonhallenbauges: Girders.

This relates to a bar connection for trussed or lattice-work of the Howe type, applicable to hangar girders and framework, consisting of a pair of metal plates 3^a, 3^b, or a single plate arranged at the centre of gravity of the compound chord or boom and transversely to the



17,395 of 1914.

plane of the girder. The two plates are connected by fish-plates 12, and the diagonals and verticals are so connected that the forces acting at the joint are concurrent. The fish-plates may be bent for angle joints, or hinged for hinged joints.

RATES OF WAGES IN THE BUILDING TRADE.

THE following are the present rates of wages in the Building Trade in the principal towns of England and Wales. It must be understood that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur:—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Labourers.	Bricklayers' Labourers.	Plasterers' Labourers.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Aberdare	9	—	9½	9½	—	9	8	6½	6½	6½
Accrington	10	10	9½	9½	9	9	9½	6½	6½	6½
Altrincham	9½	10	10½	10	8½	10	9	6½	7	7
Ashton-under-Lyne	10½	10½	10	10½	9	10	9	6½	6½	7½
Barnsley	9½	9½	9½	9½	9	9	8½	7½	7½	7½
Barrow-in-Furness.	9½	10	9½	9½	9½	9½	9½	7	7	7
Barry	9½	9½	9½	10	—	9	8½	6½	6½	6½
Bath	8½	8½	8½	8	7½	8	7½	6	6	6
Bedford	8	8	8	8½	8	9	6½	5½	5½	6
Birkenhead	11	11	11	11½	11	11	9½	7	7	7
Birmingham	11½	11½	11½	11½	10½	11½	9½	8½	8½	8½
Bishop Auckland	9	9	9	9	10	9	7½	6	6	6½
Blackburn	10	10½	10	10	9½	10	9½	6½	7½	7½
Blackpool	10½	9½	9½	9½	8½	9½	8½	6	6	6
Bolton	10	10½	10	10½	10	10	9½	6–7	7	7
Bournemouth	8½	9	9	9	8½	9	8½	6½	6½	6½
Bradford	10	10	9½	9½	10	10	8½	7	7	7
Bridgwater	6½	6½	6½	6½	6½	6½	6	4	4	4
Brighton	9	8½	8½	8½	—	8	7	6	6	6
Bristol	10½	10½	10½	10½	—	10½	9½	8	8	8
Burnley	10	10½	9½	9½	8	9½	9½	7	7	7½
Burton-on-Trent	9	9	9	9½	9	9	8½	6½	6½	6½
Bury	10½	10½	10	9	9½	10	9	6	7	7
Cambridge	9½	9	9	9½	9½	9½	7½	6	6	6
Canterbury	8½	8	8	10	—	8½–9	7	5	5	5
Cardiff	10½	10½	10½	10½	10½	10½	9½	7½	7½	7½
Chatham	8	9	9	9	9	9	7½	6	6	6
Chelmsford	8	7½	8½	9	—	7½	6½	5	5	6½
Cheltenham	8½	8½	8½	8½	—	8½	8½	6	6	6
Chester	9½	10	10	9½	9½	9½	8½	6½	7	6½
Chesterfield	9	9	9	8	9	8½	8½	5½	5½	5½
Colchester	8	8½	8½	9	8	9	6	5½	5½	5½
Coventry	10½	10½	10½	10½	9½	10½	9½	7½	7½	7½
Crewe	7½	8	7½	9	8½	8	7½	5½	5½	6
Darlington	9½	10	10	10½	10	9½	8½	7	7	7
Derby	9½	9½	9	9	9	9	8	6½	6½	7
Doncaster	9½	9½	9	9	9	9	8	6½	6½	7
Dudley	8½	8½	9	8½	8½	8	7½	5½	5½	6
Durham	9	9	9½	9	10	9	8½	6	6	6½
East Glam. and Mon. Valleys	10	10	10	10	—	—	9	7	7	7
Exeter	8	8½	8	8½	7½	7½	7	5½	5½	5½
Folkestone	8½	8½	8½	9	8½	8½	7–7½	6½	6½	6½
Gloucester	8	8½	8½	8	8	8½	8	5½	5½	5½
Grantham	8	8	7½	7½–8	7½–8	7	6½	5	5	5
Grays	—	10	10	—	—	9½	8½	7	7	7
Grimsby	9	9	9	9½	9	9	8½	7	7	7
Great Yarmouth	8	8	8	—	8	8	6½	5	5	—
Halifax	10	10	9½	8½	8½	9	8½	7	7	7
Harrogate	9½	9½	9	9	8	9½	8½	6½	6½	6½
Hartlepools	10	10½	10½	10½	10	10	9	7½	7½	8
Hastings	8½	8	8	8½	8	8	7	6½	5½	6½
Hereford	8	8	7½	8½	8	7	7	5½	5½	5½
Huddersfield	10	10	9½	9½	10	9	8½	7½	7½	7½
Hull	10½	10	10	10	10	10	9	8	8	8
Ipswich	8½	8½	8½	9	9	8½	7	5½	5½	5½
Lancaster	10	10	9	9	9	9	9	6	6	6½
Leamington Spa	9	9	9	8½	9	9	8	6	6	6
Leeds	10	10	10½	10	10	10	8½	7½	7½	7½
Leicester	10½	10	10½	10½	10	10	9	7½	7½	7½
Lincoln	9	8½	8½	9	8½	8½	8	6	5½	6½
Liverpool	11	11	11	11	10½	11	9½	7	7	7
Llanelly	9½	9½	9½	8½	9	8½	8	5½	5½	5½
London	11½	11½	11½	11½	—	1s.	9	8	8	8
Loughborough	9	8½	8½	9	9	8½	7½	5½	5½	6½
Luton	9½	9	9	8½	9	8½	7½	6½	6½	6½
Maidstone	9	9	9	9	9	9	8	6	6	6
Manchester	11	11	11	11	10	11	9½	7½	7½	7½
Mansfield	8½	9	8½	8½	—	8½	8	6	6	—
Merthyr Tydfil	9½	9½	9½	9½	8½	9	8	6½	6½	6½
Middlesbrough	10	10½	10½	10½	10	10	8½	7½	7½	8
Newcastle-on-Tyne	11	11	11	11	10	10	9½	7½	7½	7½
Newport, Mon.	10	10	10	10	8½	10	9	7	7	7
Northampton	9	9	9	9	8½	9	8	6	6	6
Norwich	8½	8½	8½	8½	8	8½	7½	6	6	6
Nottingham	10	10	10	10½	9½	10	9	7½	7½	8
Oldham	10½	10½	10½	10	9	10	9½	7	7	7½
Oxford	9½	9	9	9	8	9	8	6½	6½	6½
Plymouth	9	9	9	9	9	9	8	6½	6½	6½
Pontypridd	9½	9	9	9½	9	9	8	6½	6½	6½
Portsmouth	9½	9½	9½	9½	—	8½	7½	7	7	7
Preston	10½	10½	10	9½	9½	10	9½	6	7	7½
Reading	8½	9	9	9½	—	9	7½	6	6	6
Rochdale	10½	10½	10	10	8½	10	9	7	7	7½
Rochester	8	9	9	9	9	8½	7½	6	6	6
Rugby	9½	9½	9½	9½	8	9½	8½	6	6	6
St. Albans	9	9	9	9–10	9	9–10	8	6½	6	6½
St. Helens	9	9½	10	9½	9½	9½	9½	6	6½	6
Scarborough	9	9½	9	8½	8	9	8	7	7	7
Sheffield	10½	9½	10½	9½	10	10	9	7½	7½	7½
Shrewsbury	8½	8½	8½	9½	—	8½	7	5½	5½	5½
Southampton	8½	9½	9½	8½	—	9½	8½	6½	6½	6½
Southend-on-Sea	9	9	9	9	P'cework	9	7	6	6	6
Southport	10	10	9½	9½	9½	9½	9½	6½	7	7
South Shields	11	11	11	11	10	8½	9½	7½	7½	7½
Stockport	10½	10	10	10½	9½	10	9½	6	6½	7½
Stockton-on-Tees	10	10½	10½	10½	10	10	9	7½	7½	8
Stoke-on-Trent	9	9½	9	9	—	8½	8½	6	6	—
Stroud	7½	7½	7½	7½	7½	7½	7	5	5	5
Sunderland	11	11	11	10½	10	9	9½	7½	7½	7½
Swansea	9½	9½	9½	9½	8½	9	9	6½	6½	6½
Taunton	7	7	7	7	—	6	6½	4½	4½	4½
Torquay	8	8	8	8	8	8	8	6	6	6
Wakefield	9½	9½	9	9½	8½	9	8	7	7	7
Walsall	9½	9	9	9	8½	10	8	6½	6½	6½
Warrington	8½	10½	10½	10½	8½	10½	9½	6½	6½	6½
West Bromwich	10	10	10	10½	—	9	8	7	7	7
Wigan	10	10½	9½	9½	9	9½	9½	7	7	7
Windsor	9	9	9	10	—	9	—	6	6	6
Wolverhampton	9½	9½	9½	10	8	10	8	6½	6½	6½
Worcester	8½	9	9	9	9	9	7½	6	6	6
York	9½	9½	9	9½	9½	9	8½	7	7	7

The masons' rate given is for bankers; fixers usually ½d. per hour extra.

THE SOCIETY OF ARCHITECTS.

WE take the following from the Report of the Council of the Society of Architects for the year ended October 31, 1915. The Report was adopted at the annual general meeting on the 13th inst.:—

The Thirty-first Annual Report of the Council covers a period of twelve months, during which time the first consideration of most people has been the call and response to active service of some kind tending to the successful prosecution of the war against the common enemy. Matters of personal and professional interest have taken for the time being a secondary place, but they have demanded from this very fact an even more anxious and careful attention than might be called for under normal circumstances. At the last annual general meeting the view was expressed by a representative of the general body of members that the Society must be prepared for a less favourable Report on the next occasion. The Council trusts that the members will agree, after a perusal of the Report, that, while all the departments of the Society's work have been affected by the war, its position both numerically and financially has been not merely maintained, but more firmly established. This has been effected by a policy of economy which, while not interfering with the essential activities of the Society, has enabled the Council to conserve the individual interests of members, especially of those more seriously affected by the war than others, to consolidate the Society's resources, and to make what provision is humanly possible for future contingencies.

Twenty-one candidates have been elected to membership by ballot of the members, and one candidate and six students have been admitted to the respective registers by the Council. After allowing for deaths, resignations, lapses, removals, and transfers, the total membership on October 31 was 1,213, made up as shown. Last year's figures are given for comparison:—

	1915.	1914.
Honorary members ..	30	29
Retired members	25	23
Members	1,003	1,014
Graduates	7	7
Students	148	155
Total ..	1,213	1,228

Professional Practice. Attendances on Subcontractors.—As stated in the last Report, the Council was then in negotiation with the Surveyors' Institution on the question of the definition of the term "attendance," the proposal being that the subcontractor shall know precisely what services must be performed by him and rendered to him. The Council, after careful consideration of the memorandum, was able to approve in principle the recommendations of the Surveyors' Institution, but made some suggestions for alterations in detail. These related more particularly to descriptive items which it was thought might with advantage be summarised in the case of small contracts and set out fully in works of more importance. The Council also suggested an additional clause relating to the use of scaffolding. After further negotiations the Surveyors' Institution intimated that the suggestions made by the Society would be adopted when reissuing the circular on attendances on subcontractors. Full details relating to the matter were published in the March issue of the Society's *Journal*.

The Board of Agriculture and Fisheries, and Rural Cottages.—The attention of the Council was called on a question of principle to the issue by the Board of a Report containing designs, specifications, and working drawings of cottages, which document could be purchased for a nominal sum. In the Report there was no definite reference to the desirability of retaining an architect's services in order more fully to attain the object which the Advisory Committee had in view. The Council felt that the omission would tend to accentuate the feeling already existing among some private and public building owners that the services of an architect were superfluous in connection with work of this kind. It, therefore, entered a strong protest on the point to the Board. The Board's reply did not cause the Council to withdraw its observations or to change its opinion that an injustice had been done to the architectural profession by the publication of the Report in that form by a Government Department. The Council subsequently sent copies of the correspondence between the parties to the architectural Press and printed it in the Society's *Journal*, so that those concerned might draw their own conclusions. The majority of those who expressed their views on the subject upheld the action of the Society.

Professional Defence.—The services of the Advisory Committee were called in to consider whether a case submitted by a member involving an alleged infringement of copyright in a design was of such a character as would justify the Society in co-operating with the member in bringing an action to decide the point in the interests of the profession. The case was gone into very fully in all its bearings, and the findings of the Committee were placed at the disposal of the member concerned for his guidance.

The Practice Committee has been called upon frequently to advise members on points of practice, and from the acknowledgments received from the recipients it would seem that the assistance which has been rendered to them has been appreciated. The Committee has also had before it points relating to matters of professional etiquette. The questions raised have shown the desirability of strengthening the disciplinary powers of the Council, and a proposal to this end will presently be placed before the members by way of a proposed alteration to the Articles of Association. At the same time opportunity will be taken to suggest further revisions in other ways also, more particularly in the direction of a reconstitution of the Council so as to give a more definite proportional representation of country members thereon, and to secure more continuity of service than is possible under the present regulations.

Standard Documents.—The model form of conditions of building contract in the drafting of which the Council had the assistance of Mr. W. Valentine Ball, barrister-at-law, was the subject of discussion at a members' meeting in May. Since then other suggestions for revisions have been received from members, and the Council hopes it may be possible during the new session to report further progress. There are, however, questions of policy as well as of detail which require careful consideration, and some time must necessarily elapse before a definite announcement can be made.

In the meantime the Council has drawn up a number of forms for use under the London Building Act. They comprise the following:—

(1) Party Structure Notice.
(2) Party Fence Wall Notice.
(3) Party Wall Notice where adjoining lands are unbuilt on at the line of junction.
(4) External Wall Notice where projecting footings on adjoining lands are intended.
(5) Notice of intention to build within 10 ft. of and at a lower level than the foundations of an adjoining building.
(6) Counter Notice by Adjoining Owner who has been served with notice of intention to build within 10 ft. of and at a lower level than the foundations of his building.
(7) Notice to appoint a Surveyor.
(8) Notice to appoint a new Surveyor.
(9) Appointment of Surveyor on Default.
(10) Appointment of Third Surveyor.
(11) Notice Requiring Arbitration on a disputed dangerous Structure Notice and appointment of Owner's Surveyor.
(12) Appointment of a Third Surveyor as Arbitrator on a disputed Dangerous Structure Notice.
(13) Notice Requiring Arbitration on a disputed Dangerous Structure Notice and appointment of Owner's Surveyor.
(14) Appointment of a Third Surveyor as Arbitrator on a disputed Dangerous Structure Notice.

The Society's Parliamentary propaganda in this direction has been suspended during the war. The need of Registration in the interest of all concerned becomes more evident every day. The war itself has provided an object-lesson in the attitude of the Government towards the profession as a body in placing in other hands very much work in connection with war contracts which might well have been allotted to architects, even if only as some compensation for its action—no doubt a very necessary one at the moment from the Government point of view of discouraging public and private expenditure on building operations. Until architects have a legal status, and are properly organised, they cannot expect to receive as a body that recognition which other protected professions can claim. The efforts of architectural bodies in other parts of the Empire are all in the direction of statutory Registration, and in several of the Dominions success has been attained, and in others the question of Registration is still being debated, with a view to further action at an early date.

In South Africa the Society's branch is actively supporting a proposal for the extension of the Transvaal Architects' Act to the Union of South Africa, and has undertaken to give the Cape Institute of Architects not only moral but substantial financial support to this end. It is stated that in Queensland there is a Registration Bill under consideration by the Cabinet, and that the Royal Victorian Institute of Architects are pushing forward with a Bill based on the lines of the Transvaal Architects' Act. Similar steps are being taken in Tasmania and South Australia, and Registration is understood to be in force in New York, Michigan, and Florida. These centres are in addition to others which have already secured Registration. The list is incomplete, but it serves to show how the principle for which the Society has contended for so long and is still contending is becoming increasingly recognised by other architectural institutions, and by those sections of communities having dealings with architects.

The Council, at the commencement of the session, renewed its permission for the Beaux-Arts Committee to use the Society's premises for its meetings, and the services of the Secretary and of the clerical staff for carrying on its business.

The war has affected the influx of new members into the Atelier, but the work has been continued on the same lines as before, although under somewhat different conditions. The Sous Patron, M. Chaurès, who has been with the Army of France since the outbreak of war, has been seriously wounded. All the eligible members of the Atelier have enlisted or obtained commissions, and several of the most promising of them have been killed in action.

Members who have read the *Journal* will have noted how the movement initiated by the Beaux-Arts Committee at home, with the assistance of the Society, has borne fruit in the creation of a similar movement in New Zealand, and in the suggestion of educational work on these lines in South Africa. It is interesting to recall how the proposal, when first given practical effect to by the Society of Architects, was received with coldness by some who have since become converted to the views of the Beaux-Arts Committee.

The Society is represented on the Architects' War Committee and its subsidiary committees, one of the most important of which is the Professional Employment Committee. This body carries on its work at the Society's premises with the aid of the Secretary and the clerical staff. The work of this Committee has very greatly developed during the past year.

The scheme of civic surveys, initiated by Mr. Lanchester, a member of the Committee, has received Government sanction and support, and is now a separate department. The Council offered the promoters the use of the Society's premises for the survey work, but it was evident that the requirements would include accommodation for a staff of draughtsmen and investigators, which it was beyond the Society's present power to house. The work is being carried on at the R.I.B.A. Galleries, and the provincial centres have been also established. Some of the work connected with this still falls upon the Professional Employment Committee, but its chief work is in dealing with developments of the Society's original proposal for finding temporary paid work for architects in distress owing to the war. This usually takes the form of measured drawings or descriptive reports on many and varied subjects,

and is distinct from the Government Civic Survey work. It may be remembered that, as an earnest of its desire to support the scheme for providing paid professional work, the Society made a donation of 100 guineas as the nucleus of a fund. The members of the Society have since augmented this to a total of £175 10s. 3d.

BOOK REVIEW.

Levelling and its General Application. By THOMAS HOLLOWAY. Revised by H. T. TALLACK. (London: E. & F. N. Spon, Ltd. Price 2s. 6d. net.)

THIS is the third edition of an excellent little book dealing with the art of levelling in a simple manner, which renders it eminently suitable for the uninitiated, and it can be recommended to architects' and engineers' pupils and assistants who are commencing their studies. The general principles of levelling are first explained and the various instruments described, and from these the reader is taken to the actual process of taking levels under different conditions.

Examples are fully illustrated, together with explanations for the use of the field book, and hints as to procedure are given for the beginner. A chapter is devoted to the use of the theodolite and another to town levelling, while other sections of the book describe special cases such as the crossing of a river.

A series of examination papers are attached at the end of the book for the use of the student.

It is quite impossible to learn levelling entirely from the study of books, as actual field lessons are absolutely essential to the beginner in order that he may understand the instruments and their adjustments; but a good groundwork can be obtained which will be of value when on the field for the first time or two, and we consider that this book will prove to be of great assistance for this purpose.

LAW REPORTS.

Thermit Process of Welding Tramlines and Building Girders.

THE Thermit process for the welding of tramlines and building girders was the subject of an application in the Patents Court recently.

A twelvemonth since, Messrs. Blackwell & Turner applied for, and were given, the title to use the two foundation patents of this process, which belongs to Thermit, Ltd., of 27, Martin's-lane, E.C., and they now asked under their new name of the British Thermit Company, Ltd., of 49 and 51, The Albany, Liverpool, for licence to use eight other patents relating to the same process, all belonging to Thermit, Ltd. The two patents already obtained were Nos. 10,859 of 1901 and 24,439 of 1902. The eight patents of the present application were Nos. 25,297 of 1904, 21,750 of 1909, 24,389 of 1910, 19,473 of 1911, 16,165 of 1912, 218 of 1913, 1,179 of 1913, and 26,180 of 1913.

For the applicants, Mr. E. R. Royston, Liverpool, said the substantial shareholding in Thermit, Ltd., was German, and the company was now being worked under a controller, and was supplying munitions to the Government. The applicants' alteration of name had had the approval of the Board of Trade, and the applicants were themselves doing a great deal of work for the Minister of Munitions. Thermit *per se* anybody might now use, but the processes covered by the eight patents were essential for right welding in the laying of tramlines and the erection of building girders. Various thermit compounds were used in the reheating of molten steel and iron, and the applicants, he submitted, ought not to be placed in any worse position, for the employment of this alumina-thermic method, than the respondent firms. Thermit, Ltd., were opposing. Mr. Blackwell, he should add, had experimented in the matter, and had used thermit for reducing metals and in obtaining tremendous heat for metals which moulded with difficulty, and for forming alloys. Tramway Corporations in the North of England and elsewhere were anxious that the applicants should be placed in a position to give them the full benefit of these processes. Of course the opponents were keen competitors, doing all they could to keep hold of this business to the last. It would be monstrous, however, for the applicants to be placed in a less satisfactory position for trading than Thermit, Ltd., especially in view of the German shareholding in that company. The patents applied for included clamping by screw force while welding was going on, fusing or welding the rails *in situ*, and an apparatus for securing accurate alignment and regular curves. The applicants needed these patents for authorities which were laying down rails both in this country and abroad.

Mr. Colefax, K.C., for the opponents, insisted that this was a general and promiscuous application for patents. One of the patents asked for had never been used in this country at all! Had Thermit, Ltd., possessed fifty patents they might all have been demanded in this cheerful way. As it was, the applicants had pretty well roped in all they had. He supposed the doctrine on which they acted was, "The more the merrier." The respondents were a registered British company using all these processes themselves, it was important to remember, and they were now under Government direction.

The Controller of Patents (Mr. Temple Franks, with whom sat the Deputy-Controller, Sir Cornelius Dalton) said he was sorry that what he had so often seen before had happened in this case. The British manufacturer, though he had the whole thing in his hands at one time, had left it alone and left it to the Germans to take the thing up and develop the process. He let, say, fifteen years go by, and then exclaimed, "What a deplorable thing it is that these Germans should be running this process!" That had happened with company after company in things the most important for the commerce of this country. The German company were perfectly right if the others were such fools as to allow them to do it. And they had been fools.

Mr. Colefax suggested that the Patents Court had been proceeding on the wrong line in its reading of the law in respect to the patents of alien enemies. The rules by which it had to work were not designed to give these patents into other hands if they were being satisfactorily worked for the good of this country. The rules had been misread. All that was required was that this country should not be left without its supply. Thermit, Ltd., had not only the ability and readiness to supply, but an experience and efficiency which rendered them more acceptable to British corporations. And they were under Government control.

The Controller of Patents: It will take a good deal to convince me that it is not to the general interest of the community or of trading generally that some independent English company should be sellers of a material of such great commercial uses as this. I certainly think they have made out a good *primâ facie* case.

Mr. William Lawrence Turner, managing director of the British Thermit Company, Ltd., said they were prepared to pay a royalty of 6d. per joint where any of the patent processes were used, and he supposed a corporation would pay roughly a sovereign for the thermit for each joint and another sovereign for the mechanical appliance. The applicants would effect perhaps three joints a night, or a thousand a year. But without the patents it was practically impossible for them to do any more than sell the thermit. Thermit, or a mixture of aluminium and oxide of iron, anybody might supply. The British Thermit Company would employ all the usual powders used in welding. They had different grades at their works at Garston for different purposes to suit all conditions of welding.

The Controller observed that he wished that the corporations, when they were not satisfied with any work, would come to the Court and complain.

Mr. Colefax answered that they would not do that, because they had always been satisfied with Thermit, Ltd.'s use of its own patents.

The Controller: My feeling is that, if one can secure the trade in this country, there ought not to be a monopoly of a purely German company doing for us highly important work of this character.

Mr. Colefax said he should have to submit (a) that the needs of the country were already satisfied; (b) that there was no chance of the suspension of the source of supply, or the agency through which the need of the public was met; and (c) that the applicants could not do the work, the process being largely a secret one.

Mr. Turner answered that ordinary workmen had carried it out on the Liverpool tramways, and it had been open to observation. The applicants knew what they were about.

Evidence as to the present position of Thermit, Ltd., was given by its Controller, appointed at the instance of the Board of Trade and the War Office—Mr. Arthur Taylor, of the firm of Messrs. Hudson, Smith, Briggs, Smith, & Taylor, chartered accountants, of Thames House, Queen-street-place, E.C. The respondent firm, he said, was registered at Somerset House. Mr. Stultz, in 1914, was appointed as committee of one to take control, but since his (the witness's) appointment additional plant had been set up, and the staff and the material used were now all British. Eighty per cent. of the firm's productions at the present time had relation to munitions.

Mr. John Baillie Hamilton, general manager of the Leeds City tramways, said he would prefer that Thermit, Ltd., supplied him. The Corporation did their own welding. To make a buffer joint required considerable skill on the part of the operators, as well as proper materials and appliances. The applicants' joints under test at Leeds had not stood the same strain as the respondents'.

The Controller said the Board of Trade would communicate with the British Thermit Company. He took a note of an alternative suggestion for royalty by Mr. Royston of 5 per cent. on the patent process, not the thermit, used.

Counsel on the other side said the amount should be half-a-crown a joint.

A Piecemeal Contract.

IN the Marylebone County Court, on January 6, before his Honour Sir W. Lucius Selfe, Mr. Robert Thomas Inman, builder, 22, Brindley-street, Harrow-road, claimed £14 11s. 1d., balance of an account for work and materials, from Mrs. Tremain, of 133, Sutherland-avenue, Maida Vale. The facts, according to the plaintiff's evidence, were that the defendant in March, 1914, asked him for an estimate for the repair and internal decoration of her house, commencing at the top flat. He named a figure, and that being accepted he was told to start the job. Next he was taken to the basement and the same formula observed, and next the dining-room floor. When this was completed, he inquired about the hall and main staircase, but was told that another firm had that job.

His Honour: I see you charge various rates for wallpapers?

Plaintiff: The bargain was that I was to be allowed 1s. per piece for papers, and the defendant was to choose them; if the price was over 1s. a piece she was to pay the difference as an extra.

Mr. Morris (to the plaintiff): About these glazed tiles for the kitchen?

Plaintiff: There was a certain surface of tiling estimated for, but as I had a larger quantity of tiles there than was required I was asked to leave them, and I did.

Mr. Clay (for the defendant): You have charged £3 extra for the cornice of the dining-room?

Plaintiff: The cornice was knocked down by the gasmen who came to fix stoves in every room of the house, and had to be put up again.

Mr. Clay: About the price of the paper; how was that fixed?

Plaintiff: Defendant chose the papers. You can get them from 2d. to 10s. a piece.

His Honour: That's a jump!

Generally, plaintiff said, the defendant had agreed to his prices before he started any section of the work. Defendant said that she had agreed to pay for wallpapers up to a certain price, and those used were above her figure. The £2 charged for pulling down the sink walls was a distinct overcharge, as the water came through the dining-room ceiling and loosened the cornice. For putting this up plaintiff had charged £8, and Messrs. Henwood & Roberts had replaced it for £4 6s. She gave no instructions to replace the attic floor, and knew nothing about that work being undertaken till it was finished. As to the gas, pipes were in position all through the house, and what the gasmen did had no effect on the dining-room cornice. When this accident occurred she became suspicious of plaintiff's work, and entrusted the hall and staircase to Messrs. Henwood & Roberts, who charged her £4 6s. for work for which the plaintiff had been paid £8. He had also charged her £35 for work for which she paid £14 ten years ago. In consequence of these high prices she claimed 5 per cent. deduction from the account, and produced cheques showing that plaintiff had been paid £54 of an account for £69 10s. 9d. for the whole of the work done.

His Honour, having gone through the items *seriatim*, said he would allow the 5 per cent. claimed and the £5 cheque not credited, and gave judgment for £8 1s., with costs.

List of Competitions, Contracts, etc.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk *) are advertised in this number: Competitions, —; Contracts, iv., vi., viii.; Public Appointments, xvi.; Auction Sales, xviii. Certain conditions beyond those given in the following information are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

*** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.

Contracts.

BUILDING AND PAINTING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

JANUARY 21.—**Wigan.**—ALTERATIONS, ETC.—For proposed alterations and repairs at the Poor Law Institution, Frog-lane, Wigan, for the Guardians. Particulars of the Master of the Institution, Wigan.

JANUARY 22.—**Newark.**—CONVERTING.—For converting premises in Middlegate into a schools clinic, for the Newark Corporation. Particulars and quantities of the Borough Engineer, Town Hall.

JANUARY 26.—**Barrow.**—EXTENSIONS.—For carrying out certain extensions to the Refuse Destructor buildings, Cavendish-street, for the Corporation. Forms of tender, etc., of the Borough Engineer.

JANUARY 26.—**Brentford.**—ALTERATIONS, ETC.—For certain alterations and repairs to be carried out:—(1) At the Union Offices; (2) at Warkworth House, for the Guardians. Plans and specifications, etc., at the Union Offices, Isleworth. Mr. F. E. Harmsworth, Clerk to the Guardians.

JANUARY 29.—**East Kilbride.**—SCHOOL.—For the erection of a small wooden open-air school at Hairmyres Institution, East Kilbride. Plans may be seen and copies of the specification and tender obtained at the office of Mr. W. E. Whyte, District Clerk, District Offices, Hamilton.

* JANUARY 29.—**Hackney.**—SHOPS AND STORES.—Tenders are invited for six small lock-up shops and stores at Mare-street, Hackney.

JANUARY 31.—**Churwell.**—WAREHOUSE, ETC.—Erection of three-story warehouse, engine-house, engine-beds, gas-production plant, etc., at Millshaw Leather Works, Churwell, for Messrs. W. L. Ingle, Ltd. Plans and specifications of Mr. T. A. Buttery, Licentiate R.I.B.A., architect and surveyor, Queen-street, Morley.

JANUARY 31.—**Harrogate.**—DECORATIONS.—Interior decorations at the Harlow Car Hotel and the Victoria Baths, etc., for the Corporation. Sepcification and form of tender of Mr. C. E. Rivers, A.M.Inst.C.E., Borough Engineer, Municipal Offices.

JANUARY 31.—**South Milton.**—REPAIRS, ETC.—For repairs and alterations to farm buildings at Whitlocksworthy, S. Milton, near Kingsbridge. Specifications, etc., of Messrs. Bourne & Sons, land agents, Totnes.

FEBRUARY 2.—**Cardiff.**—ALTERATIONS, ETC.—For the erection and construction of alterations and additions at the Cardiff Sanatorium, and additions at the Cardiff Sanatorium, Canton, Cardiff, for the Cardiff City Council. Contract drawings, specifications, etc., at the City Engineer's Offices, City Hall, Cardiff.

NO DATE.—**Hartest Green (Suffolk).**—HOUSE AND SHOP.—For the erection of a house and shop at Hartest Green, Suffolk, for Messrs. Crickmore & Savage, grocers and drapers. Plans and specifications can be seen by appointment at Mr. John Honeywood's, Hartest, Bury St. Edmunds.

NO DATE.—**Lochwinnoch.**—COTTAGES.—For single or all trades required in the erection of not less than one nor more than three cottages proposed to be erected in connection with Laigh Linthills (Lochwinnoch) small holdings scheme. The Secretary, Board of Agriculture for Scotland, 29, St. Andrew-square, Edinburgh.

FURNITURE, MATERIALS, etc.

JANUARY 29.—**Birmingham.**—BUILDERS' MATERIALS.—Supply to the Public Works Committee of builders' materials for one year, ending March 31, 1917. Forms of tender, etc., of the City Surveyor, Council House, Birmingham. Deposit, £1.

JANUARY 29.—**Bishop Auckland.**—BUILDERS' MATERIALS.—Supply to the U.D.C. of builders' materials for the year ending March 31, 1917. Forms of tender, etc., of the Surveyor, Town Hall Buildings.

JANUARY 29.—**Cardiff.**—BUILDERS' MATERIALS.—Supply to the Llandaff and Dinas Powis R.D.C. of builders' materials. Tender forms of the Surveyor, Mr. James Holden, A.M.Inst.C.E., 20, Park-place, Cardiff.

JANUARY 29.—**Surbiton.**—BUILDERS' MATERIALS.—Supply to the U.D.C. of builders' materials for the year ending March 31, 1917. Tender forms of the Surveyor to the Council, Council Offices, Ewell-road, Surbiton.

JANUARY 29.—**York.**—BUILDERS' MATERIALS.—Supply to the Corporation of builders' materials during the year ending March 31, 1917. Forms of tender of Mr. F. W. Spurr, City Engineer, Guildhall, York.

JANUARY 31.—**Acton.**—BUILDERS' MATERIALS.—Supply to the U.D.C. of builders' materials for the twelve months ending March 31, 1917. Forms of tender, etc., may be seen at the offices upon application to the Surveyor's Department.

FEBRUARY 7.—**Leeds.**—CEMENT, ETC.—Supply during the twelve months ending March 31, 1917, of cement, earthenware drain-pipes, etc., sewer ironwork. Forms of tender, etc., of Mr. W. T. Lancashire, City Engineer, Municipal Buildings, Leeds.

FEBRUARY 7.—**Middlesbrough.**—BUILDERS' MATERIALS.—Supply to the Corporation of builders' materials required from April 1, 1916, to March 31, 1917. Specification, etc., of Mr. S. E. Burgess, M.Inst.C.E., Borough Engineer, Middlesbrough.

FEBRUARY 7.—**Pembroke.**—BUILDERS' MATERIALS.—Supply to the Pembroke U.D.C., County Dublin, of builders' materials during the twelve months ended March 31, 1917. Specification, etc., can be obtained at the Town Hall, Ballsbridge, Co. Dublin.

FEBRUARY 8.—**Deptford.**—BUILDERS' MATERIALS.—Supply to the B.C. of builders' materials for the year ending March 31, 1917. Forms of tender, etc., can be obtained at the Town Hall, New Cross-road, S.E., between ten and four o'clock (Saturdays, ten to twelve).

FEBRUARY 10.—**London.**—BUILDERS' MATERIALS.—Supply to the Bermondsey Guardians of builders' materials for one year, from April 1, 1916, to March 31, 1917. Forms of tender of Mr. E. Pitts Fenton, Clerk to the Guardians, No. 283, Tooley-street, S.E.

FEBRUARY 12.—**Ossett.**—MATERIALS, ETC.—Supply to the Corporation of materials, stores, workmen's tools, etc., required in the Highways, Gas, Lighting, Water, Sanitary, and Educational Departments for one year from April 1, 1916, to March 31, 1917. Specifications, etc., at the Borough Surveyor's Office.

NO DATE.—**Salford.**—LIME.—For the supply of about 500 tons of lime for the purification of gas. Particulars of Mr. William W. Woodward, Engineer, Gas Offices, Bloom-street, Salford.

ENGINEERING, IRON, AND STEEL.

JANUARY 31.—**Queensland.**—BRIDGEWORK.—For the supply to the Queensland Railway Commissioner of bridgework. Applications to the Agent-General, 409, Strand, W.C. Further particulars may be obtained at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, E.C.

FEBRUARY 14.—**Birkenhead.**—HEATING, ETC., PLANT.—For the supply, delivery, and erection at the Union Institution and Infirmary, Derby-road, Tranmere, Birkenhead, of a complete centralised heating and hot water supply plant, together with mains, connections, and accessories, for the Guardians. Forms of tender, etc., of the Consulting Engineers, Messrs. Sloan & Lloyd Barnes, M.I.Mech.E., 34, Castle-street, Liverpool. Deposit, £2 2s.

FEBRUARY 23.—**Johannesburg.**—MACHINERY, ETC.—The supply or supply and erection of machinery and fittings for proposed public wash-house, Newtown, Johannesburg. Documents and drawing may be seen on application to the Council's agents in London, Messrs. E. W. Carling & Co., St. Dunstan's-buildings, St. Dunstan's-hill, E.C. Deposit of £1 1s. is required for copies.

ROAD, SANITARY, AND WATER WORKS.

JANUARY 22.—**Fermoy.**—WELL.—For the sinking of a deep well at Ballinahown, Glanworth East E.D., for the Fermoy R.D.C. Specification, etc., can be seen at the office of Mr. Peter O'Neill, Clerk of the Council, Clerk's Office, Fermoy Workhouse.

JANUARY 24.—**Wangford.**—GRAVEL.—Supply to the R.D.C. of 80 tons of fine gravel (taken out to ¾-in. mesh), to be delivered in such quantities as may be required on or before September 30, 1916. Tender forms of Mr. S. W. Rix, Clerk, Beccles.

JANUARY 25.—**Birmingham.**—ROAD RECONSTRUCTION.—Reconstruction of a portion of Brookhill-road, Alum Rock, for the Public Works Committee. Drawings, etc., of Mr. Henry E. Stilgoe, M.Inst.C.E., City Engineer and Surveyor, the Council House, Birmingham. Deposit, £2.

JANUARY 29.—**Bridgwater.**—STONE.—Supply to the R.D.C. of stone for the roads within the above district for one year from April 1, 1916, to March 31, 1917. Forms of tender, etc., of the Council's Surveyor, Mr. W. H. Cousins, Surveyor's Office, Eastover, Bridgwater, or of Mr. T. M. Reed, Clerk to the Council, Bridgwater.

JANUARY 31.—**Beddington and Wallington.**—TAR SPRAYING.—For the tar spraying only of about 180,000 sq. yds. of the roads within their district, for the U.D.C. Form of tender, etc., of Mr. S. F. R. Carter, A.M.Inst.C.E., Engineer and Surveyor to the Council, Council Offices, Wallington, Surrey.

* JANUARY 31.—**Southwark.**—ALTERATIONS TO SANITARY FITTINGS.—The Southwark Guardians invite tenders for alterations to sanitary fittings.

FEBRUARY 7.—**Northumberland.**—STONE.—For supplying, breaking, and carting stone required for the maintenance of the county roads during the year from April 1, 1916, to March 31, 1917, for the C.C. Forms of tender, etc., of the County Surveyor, Moothall, Newcastle-on-Tyne.

FEBRUARY 9.—**Mullingar.**—SEWER, ETC.—For construction of a sewer and necessary connections thereto, at the Mullingar District Lunatic Asylum. Drawings and specifications prepared by Messrs. Doyle & Loughlin, Civil Engineers, Church-street, Athlone, can be seen at their offices, or at the office of Mr. L. Gavin, Resident Medical Superintendent, Boardroom, Mullingar Asylum.

Auction Sale.

* JANUARY 25.—**City-road, E.C.**—Mr. F. G. Bowen will sell by auction, on the premises, the plant, machinery, and stock of a builder and contractor.

[Those with an asterisk (*) are advertised in this issue.]

PRICES CURRENT OF MATERIALS.

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry.]

Since our last issue lead prices have been reduced.—ED.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

Per 1000 Alongside, in River Thames.	£ s. d.
Best Stocks	2 0 0
Picked Stocks for Facings	2 15 0

Per 1000, Delivered at Railway Depôt, London.

	£ s. d.		£ s. d.
Flettons	1 16 0	Best Blue Pressed Staffordshire	3 15 0
Best Fareham Red	3 12 0	Do. Bullnose	4 0 0
Best Red Pressed Ruabon Facing	5 0 0	Best Stourbridge Fire Bricks	4 0 0

GLAZED BRICKS—

Best White, Ivory, and Salt Glazed Stretchers	13 0 0	D'ble Str'tch'rs	18 10 0
		Double Headers	15 10 0
		One Side and two Ends	19 10 0
Headers	12 10 0	Two Sides and one End	20 10 0
Quoins, Bullnose and 4½ in. Flats	16 10 0	Splays and Squints	18 0 0

Second Quality £1 per 1000 less than best.

Thames and Pit Sand	8 0 per yard, delivered.
Thames Ballast	6 9 " " "

Per ton, delivered.

	£ s. d.		£ s. d.
Best Portland Cement	2 5 0	..	2 8 0

Do. £2 1s. alongside in 80-ton lots.

Ferrocrete 2s. 6d. per ton extra on above.

Best Ground Blue Lias Lime	1 1 0	..	—

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 17s. 0d. per yard delivered.
Stourbridge Fireclay in s'cks 35s. 0d. per ton at rly. dpt.

STONE.

	s. d.
BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	1 7
Do. do. delivered in Railway trucks at Nine Elms, L. & S.W.R., per ft. cube	1 8½
Do. do. delivered on road waggons, Nine Elms Depôt	1 9½

PORTLAND STONE—

Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Westbourne Park, G.W.R., South Lambeth, G.W.R., or Nine Elms, L. & S.W.R., per ft. cube	2 5½
Do. do. delivered on road waggons at Pimlico Wharf or Nine Elms Depôt, per ft. cube	2 6½

White Basebed, 2d. per ft. cube extra.

Per Ft. Cube, delivered at Railway Depôt.

	s. d.		s. d.
Ancaster in blocks	1 11	Red Corsehill in blocks	2 6
Beer in blocks	1 7	Closeburn Red Freestone	2 2
Greenshill in blocks	2 0	Red Mansfield Freestone	2 6
Darley Dale in blocks	2 6		

YORK STONE—*Robin Hood Quality.*

Per Ft. Cube, Delivered at Railway Depôt.	s. d.
Scappled random blocks	2 10
Per Ft. Super., Delivered at Railway Depôt.	
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 8
6 in. rubbed two sides ditto, ditto	3 2
3 in. sawn two sides slabs (random sizes)	1 0
2 in. to 2½ in. sawn one side slabs (random sizes)	0 8
1½ in. to 2 in. ditto, ditto	0 6½

HARD YORK—

Per Ft. Cube, Delivered at Railway Depôt.	
Scappled random blocks	3 0
Per Ft. Super., Delivered at Railway Depôt.	
6 in. sawn two sides landing to sizes (under 40 ft. super.)	2 9
6 in. rubbed two sides ditto	3 3
3 in. sawn two sides slabs (random sizes)	1 2½
2 in. self-faced random flags	0 6

TILES.

Per 1000 f.o.r. London.	£ s. d.
Best machine-made tiles or hand-made sand-faced tiles from either Broseley or Staffordshire district	2 12 6
Ornamental ditto	2 15 0
Hip and valley tiles (per dozen)	0 5 6

SLATES.

Per 1000 of 1200 f.o.r. London.	£ s. d.
Best Blue Bangor slates, 20 by 10	11 16 0
First quality " "	11 10 0
" " 16 by 8	5 15 0
Best Blue Portmadoc, 20 by 10	11 13 6
First quality " "	11 3 6
" " 16 by 8	5 15 0

WOOD.

BEST BUILDING REDWOOD.

Imported sizes. Per standard.

	£ s. d.		£ s. d.
Deals: 4 in. by 12 in., 4 in. by 11 in., 3 in. by 11 in., 4 in. by 9 in., and 2 in. by 11 in.	25 0 0	..	26 0 0
3 in. by 9 in., 2½ in. by 9 in. and 2 in. by 9 in.	24 0 0	..	25 0 0

WOOD (*Continued*).

BEST BUILDING REDWOOD. Per standard.

	£ s. d.		£ s. d.
Battens: 2 in., 2½ in., and 3 in. by 8 in.; 2 in., 2½ in., and 3 in. by 7 in.; 2 in., 2½ in., and 3 in. by 6 in.; 2 in., 2½ in., and 3 in. by 5 in.	22 10 0	..	23 10 0
Scantlings: 2 in. by 3 in., 2 in. by 3½ in., 2 in. by 4 in., 2 in. by 4½ in., 3 in. by 4 in., and 3 in. by 4½ in.			
Boards: 1 in., 1½ in., and 1½ in. by 6 in. and 7 in.	0 10 0	} more than	
¾ in.	1 0 0	} battens.	
Seconds: building quality deals, battens, boards, and scantlings	1 0 0	less than best.	
Best Middling Dantzic and Memel Fir Timber Logs (average specification)	Per load of 50 ft. cube. 8 10 0	..	—
Seconds do. do.	8 0 0	..	—
9 in. to 10 in. do.	7 0 0	..	—
6 in. to 8 in. do.	6 10 0	..	—
Stocks very limited.			
Sawn pitch pine logs (about 35 cu. ft. average)	Per load. 9 0 0	..	9 10 0
Do. 6 in. to 10 in.	7 0 0	..	7 5 0
Sawn Swedish Balks 4 in. by 4 in. to 6 in. by 7 in.	6 10 0	..	7 0 0
	Per standard.		
Best Pitch Pine Deals	34 0 0	..	35 0 0
Rio do.	23 0 0	..	25 0 0
Under 2 in. thick	0 10 0		extra.

JOINERS' WOOD.

White Sea First Quality Red: 4 in. by 11 in.	35 0 0	..	36 0 0
3 in. by 11 in., and 2 in. by 11 in.	34 0 0	..	35 0 0
4 in. by 9 in.	33 0 0	..	34 0 0
3 in. by 9 in., and 2½ in. by 9 in.	32 0 0	..	33 0 0
9 in. by 11 in. boards	1 0 0		more than deals.
7 in. and 8 in. battens	24 0 0	..	25 0 0
7 in. and 8 in. boards	1 0 0		more than battens.
Seconds quality	2 0 0		less than best.
Third quality	£2 to £3		less than seconds.
Archangel White Deals—			
Best 3 in. by 11 in.	28 0 0	..	29 0 0
3 in. by 9 in. and 10 in.	26 0 0	..	27 0 0
Seconds, do.	1 10 0		less than best.
U.S. Battens	19 10 0	..	20 0 0

Prepared Floorings and Matchings, Seconds Swedish Red and equal—

	Per square actual.		
1¼ in. by 7 in. planed and shot	1 5 6	..	1 10 0
1¼ in. by 7 in. planed and matched	1 6 0	..	1 10 0
1 in. by 7 in. planed and shot	1 0 0	..	1 3 0
1 in. by 7 in. planed and matched	1 1 0	..	1 4 6
¾ in. by 7 in. planed, matched and beaded, or V jointed	0 16 0	..	0 17 6
1 in. by 7 in. do.	1 1 0	..	1 3 6
¾ in. by 7 in. do.	0 13 0	..	0 14 0

6 in. at 6d. per square less than 7 in.

5 in. and 5½ in. at 6d. per square less than 6 in.

	Per standard.		
Columbian or Oregon Pine, best quality	35 0 0	..	40 0 0
Yellow Pine—First, regular sizes	57 0 0		upwards.
Oddments	39 0 0		"
Seconds, regular sizes	43 10 0		"
Oddments	37 10 0		"
Kauri Pine—Planks per ft. cube	0 7 6	..	—
Oak Logs—			
Large, per ft. cube	0 6 0	..	0 6 6
Small " "	0 5 0	..	0 5 6
Wainscot Oak Logs, per ft. cube	0 10 6	..	0 12 6
Dry Wainscot Oak, per ft. super, as inch	0 1 0	..	0 1 3
¾ in. do. do.	0 0 10	..	0 1 0
Dry Mahogany—Honduras, Tabasco, per ft. super, as inch	0 1 0	..	0 1 4
Selected, Figury, per ft. super, as inch	0 1 6	..	0 2 6
Cuba Mahogany	0 1 6	..	0 2 6
Dry Walnut, American, per super, as inch			upwards.
	0 1 0	..	0 1 3
French, "Italian," Walnut	0 1 0	..	0 1 6
Teak, per load (Rangoon or Moulmein)	28 0 0	..	34 0 0
Do. do. (Java)	25 0 0	..	27 0 0
American Whitewood planks, per ft. cube	0 6 6	..	0 7 6

METALS.

JOISTS, GIRDERS, &c.

	In London or delivered Railway Vans, per ton. £ s. d.		£ s. d.
Rolled Steel Joists, ordinary sections, basis price	20 5 0	..	21 5 0
Plain Compound Girders, ordinary Sections	22 0 0	..	23 0 0
Plain Compound Stanchions	23 0 0	..	24 10 0
Angles, Tees, and Channels, ordinary sections	20 10 0	..	21 10 0
Flitch Plates	20 10 0	..	21 10 0
Cast Iron Columns and Stanchions, plain ordinary patterns	13 10 0	..	14 0 0

(Turning extra.)

METALS (*Continued*).

Per ton, in London.	£ s. d.		£ s. d.
IRON—			
Common Bars	16 0 0	..	—
Staffordshire Crown Bars, good merchant quality	16 10 0	..	17 0 0
Staffordshire "Marked Bars"	17 0 0	..	17 10 0
Mild Steel Bars	16 10 0	..	17 0 0
Steel Bars, Ferro-Concrete quality, £17 10s. basis price.			
Hoop Iron, basis price	17 10 0	..	—
" " Galvanised	30 0 0	..	35 0 0
(*And upwards, according to size and gauge.)			
Sheet Iron Black—			
Ordinary sizes to 20 g.	18 0 0	..	—
" " 24 g.	19 0 0	..	—
" " 26 g.	20 0 0	..	—
Sheet Iron, Galvanised flat, ordinary quality—			
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	29 0 0	..	—
Ordinary sizes to 22 g. and 24 g.	29 10 0	..	—
Ordinary sizes to 26 g.	32 0 0	..	—
Sheet Iron, Galvanised, flat, best quality—			
Ordinary sizes to 20 g.	30 0 0	..	—
" " 22 g. and 24 g.	30 10 0	..	—
Ordinary sizes to 26 g.	33 10 0	..	—
Galvanised Corrugated Sheets—			
Ordinary sizes, 6 ft. to 8 ft. 20 g.	28 0 0	..	—
Ordinary sizes, 22 g. & 24 g.	28 10 0	..	—
Ordinary sizes, 26 g.	29 0 0	..	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	19 15 0	..	—
Best Soft Steel Sheets, 22 g. & 24 g.	20 0 0	..	—
Best Soft Steel Sheets, 26 g.	21 15 0	..	—
Cut Nails, 3 in. to 6 in.	18 10 0	..	19 0 0
(Under 3 in., usual trade extras.)			

LEAD, &c.

Delivered in London.	£ s. d.		£ s. d.
LEAD—Sheet, English, 4 lb. and up	36 10 0	..	—
Pipe in coils	37 0 0	..	—
Soil pipe	40 0 0	..	—
Compo pipe	40 0 0	..	—

NOTE—Country delivery 20s. per ton extra; lots under 5 cwt. 1s. per cwt. extra.

COPPER—				
Strong Sheet	per lb.	0 1 5	..	—
Thin "	"	0 1 6	..	—
Copper nails	"	0 1 5	..	—
Copper wire	"	0 1 5	..	—
BRASS—				
Strong Sheet	"	0 1 3	..	—
Thin	"	0 1 4	..	—
TIN—English Ingots	"	0 1 10	..	—
SOLDER—Plumbers'	"	0 0 10	..	—
Tinmen's	"	0 1 0	..	—
Blowpipe	"	0 1 2	..	—

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES AND IN SQUARES IN ORDINARY SIZES.

Per Ft.		Per Ft.	
15 oz. thirds	5½d.	32 oz. thirds	8½d.
21 oz. thirds	6½d.	" fourths	7½d.
" fourths	5½d.	Fluted Sheet, 15 oz.	5½d.
26 oz. thirds	7d.	" 21 oz.	6½d.
" fourths	6½d.		

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per Ft.
⅛ Rolled plate	4d.
⅜ Rough rolled and rough cast plate	4½d.
½ Rough rolled and rough cast plate	4½d.
Figured Rolled, Oxford Rolled, Oceanic, Arctic, Muffled, and Rolled Cathedral, white	5d.
Ditto, tinted	6½d.
Rolled Sheet	4d.

OILS, &c.

		£ s. d.
Raw Linseed Oil in pipes per gallon		0 3 9
" " " in barrels	"	0 3 10
" " " in drums	"	0 4 1
Boiled " " in barrels	"	0 4 0
" " " in drums	"	0 4 4
Turpentine in barrels	"	0 4 5
" in drums	"	0 4 8
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)		45 15 0
Red Lead, Dry	per ton	42 10 0
Best Linseed Oil Putty	per cwt.	0 11 0
Stockholm Tar	per barrel	1 12 0

GENUINE WHITE LEAD PAINT—

"Blackfriars," "Nine Elms," "Park," and other best brands (in 14 lb. tins) not less than 5 cwt. lots per ton delivered	56 15 0

VARNISHES, &c.

Per gallon.	£ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 6
Fine Elastic Carriage	0 12 9
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 10 0
Finest Pale Durable Copal	0 18 6
Extra Pale French Oil	1 1 0
Eggshell Flating Varnish	0 18 0
White Pale Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

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* Denotes *accepted.* † Denotes *provisionally accepted.*

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J. Gunstone	£27 16
Lister & Co.	48 10
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J. T. Williams‡	£289 10

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Thomas	£70	H. Longley*	£66
Scott Bros.	70		

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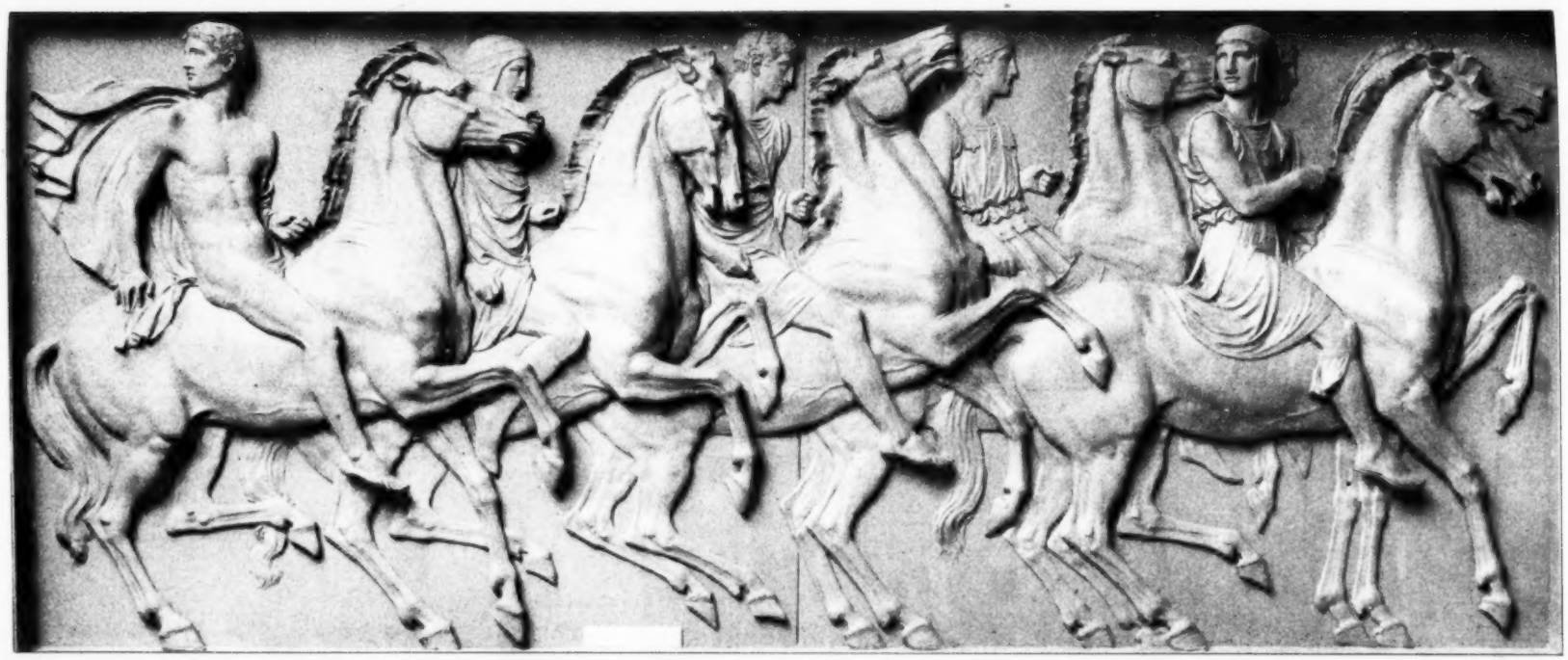

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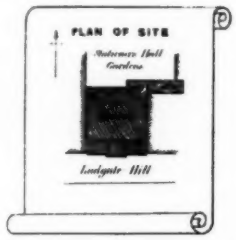
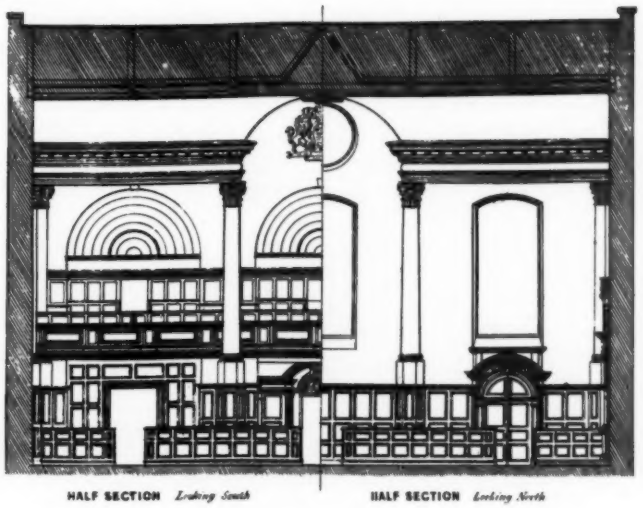
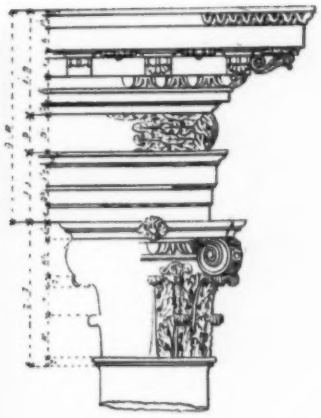
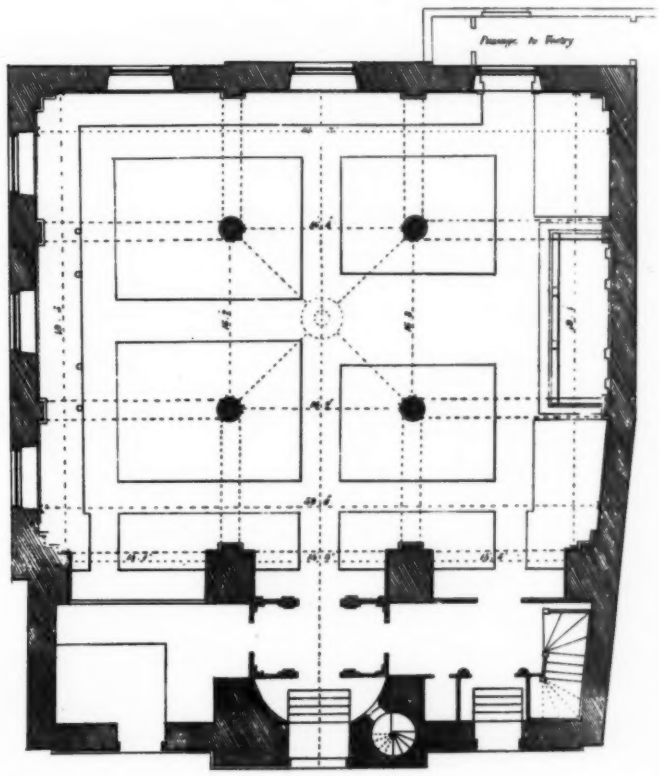


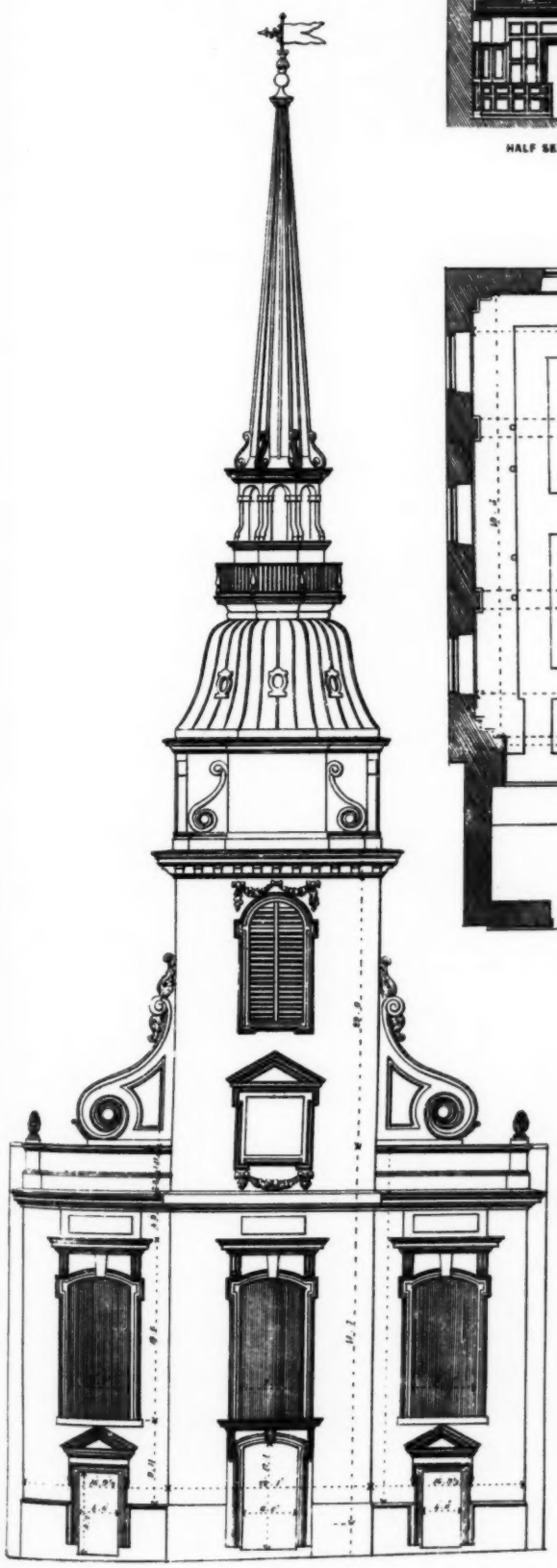


HALF SECTION *Looking South* HALF SECTION *Looking North*

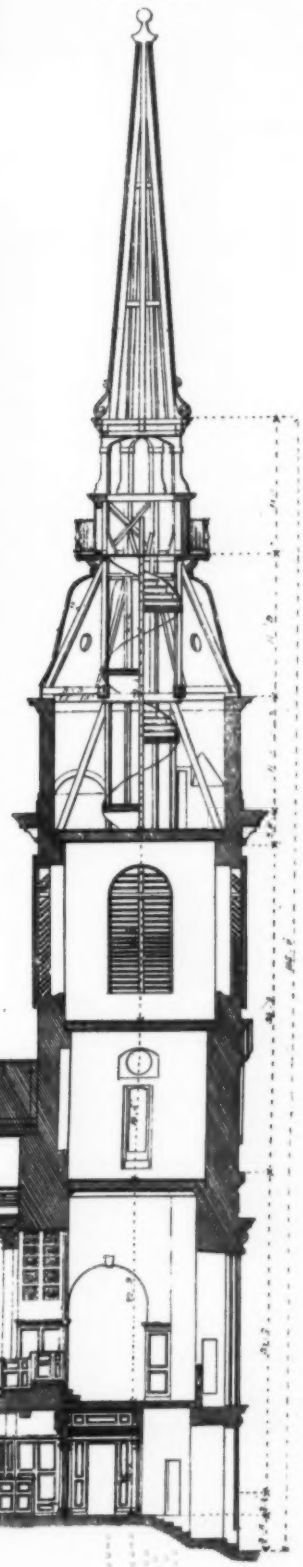


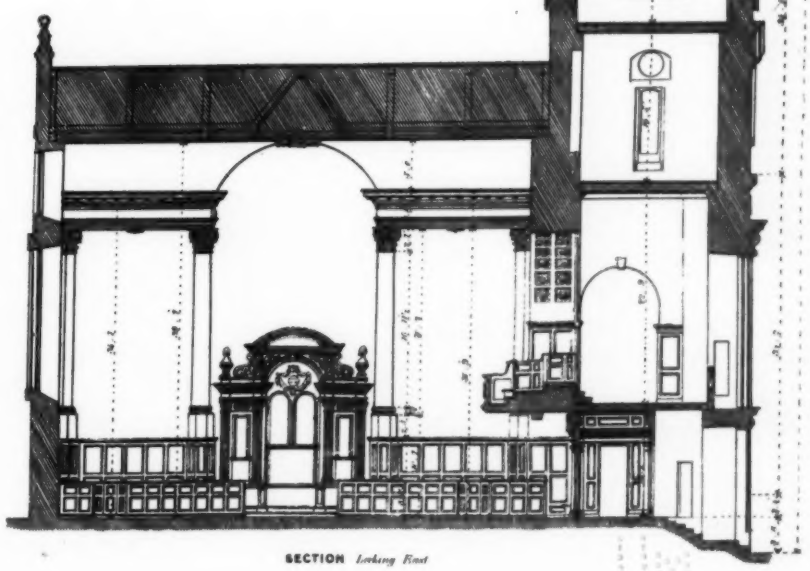


PLAN



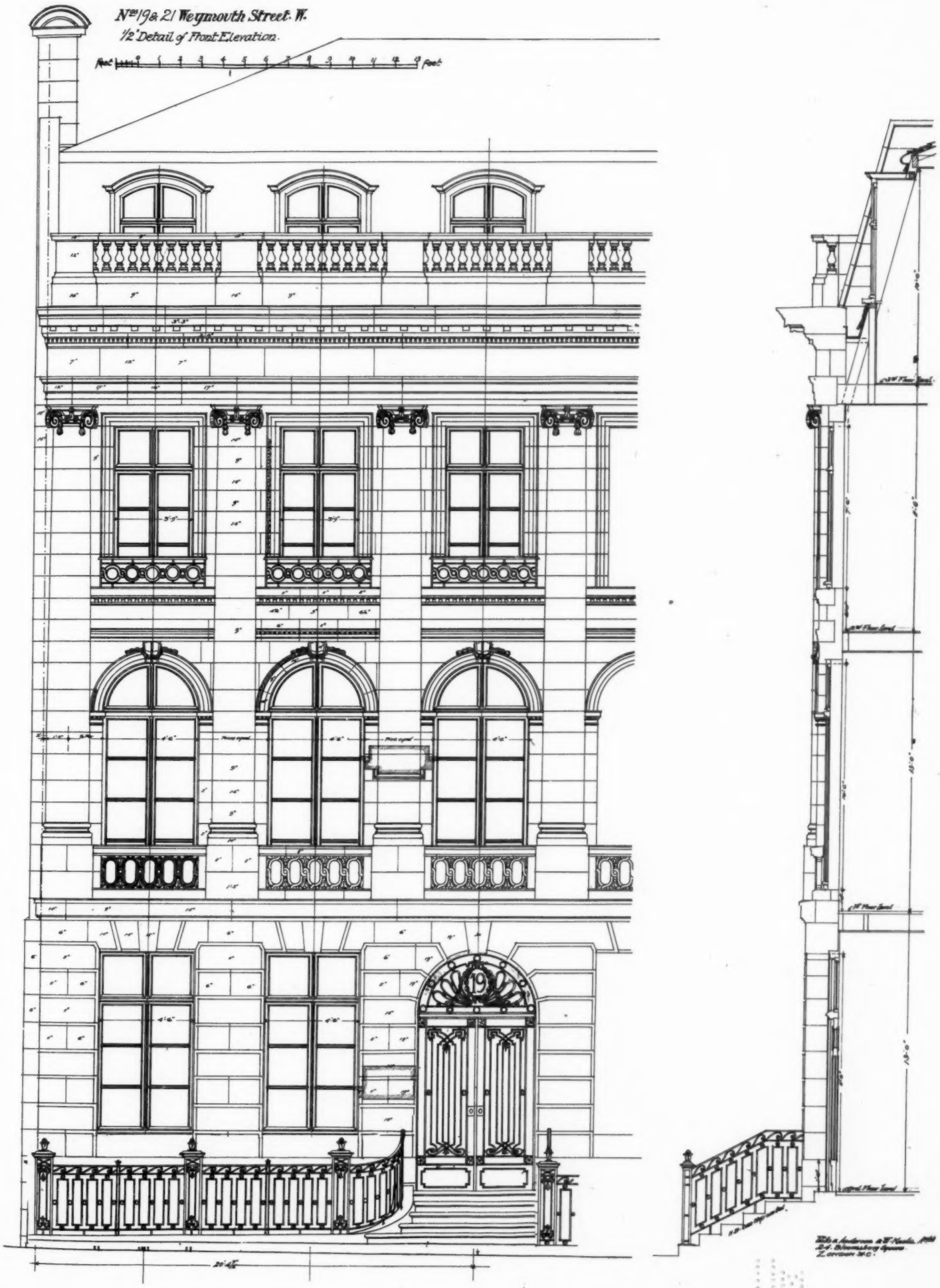
SOUTH ELEVATION *next Ludgate Hill*





SECTION *Looking East*

WREN'S CHURCHES: ST. MARTIN'S, LUDGATE HILL.



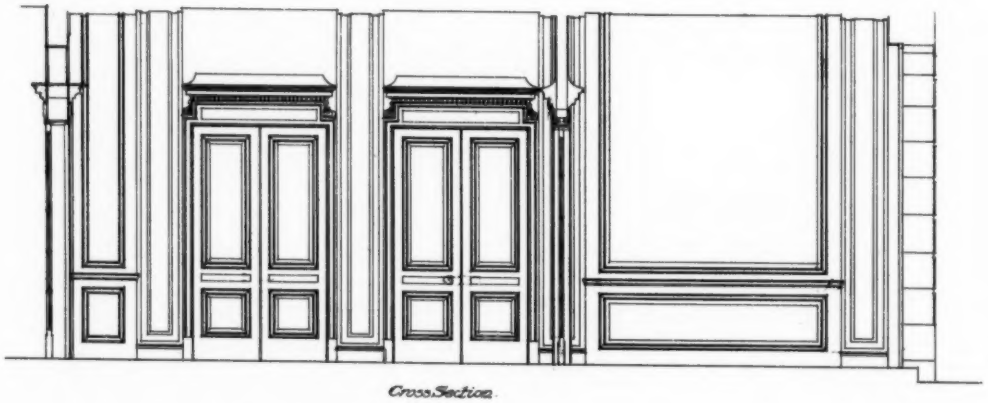
Nos. 19 & 21 WEYMOUTH STREET, W.—Messrs. Wills, Anderson & Kaula, Architects.

Nos 19 & 21 Weymouth Street. W.

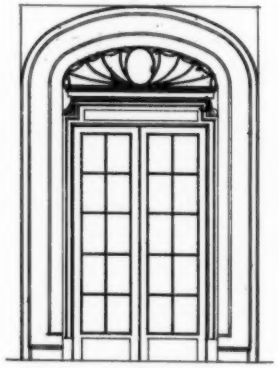
½" Details of Vestibule & Hall, & single Doors.

Nos 19 & 21 Weymouth Street. W.

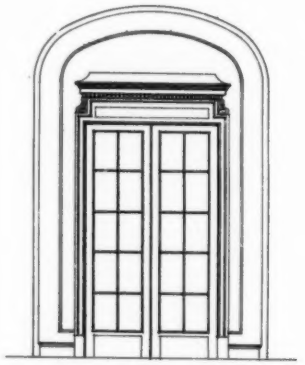
½" Details of Vestibule & Hall, & single Doors.



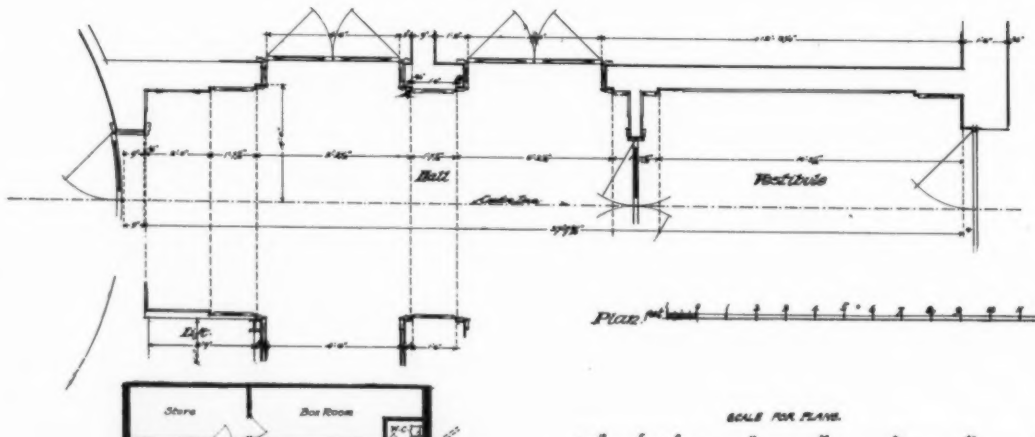
Cross Section.

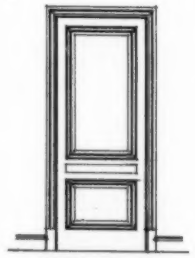


Dining Room Doors facing Hall.

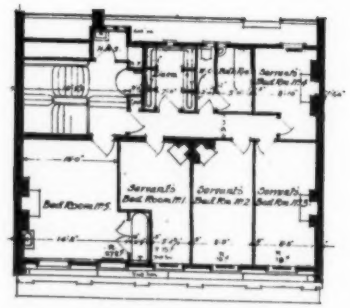


Doors between Hall & Vestibule.

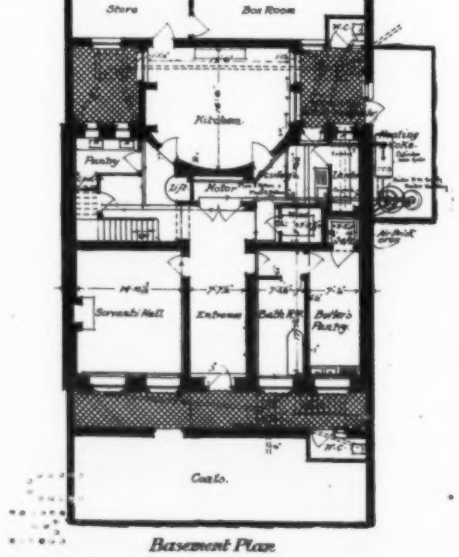




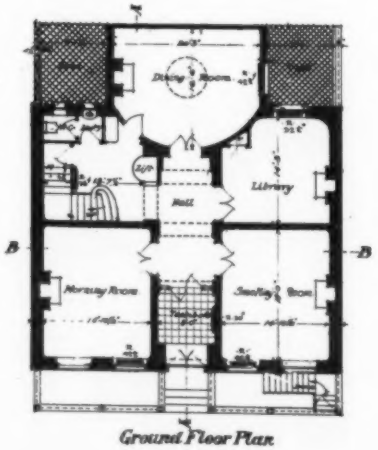
Moulded 3 Panel Doors



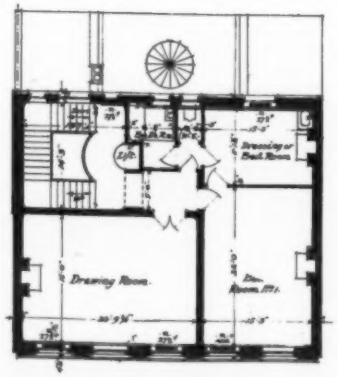
Third Floor Plan



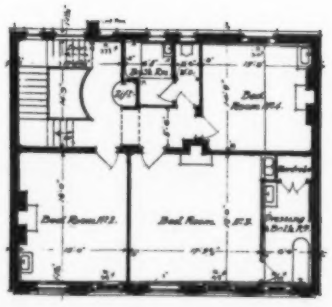
Basement Plan



Ground Floor Plan



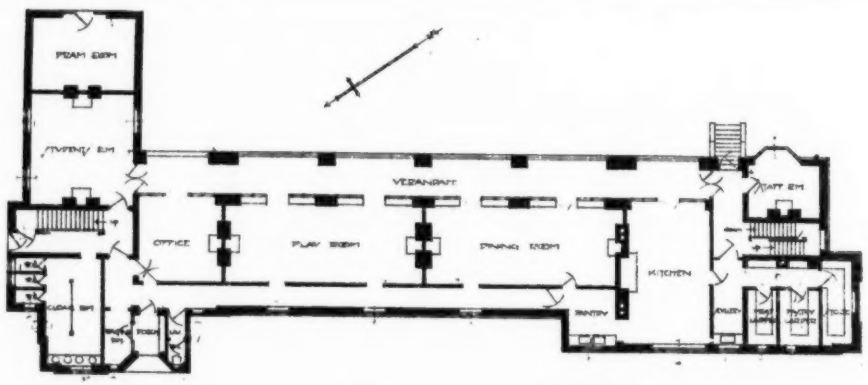
First Floor Plan



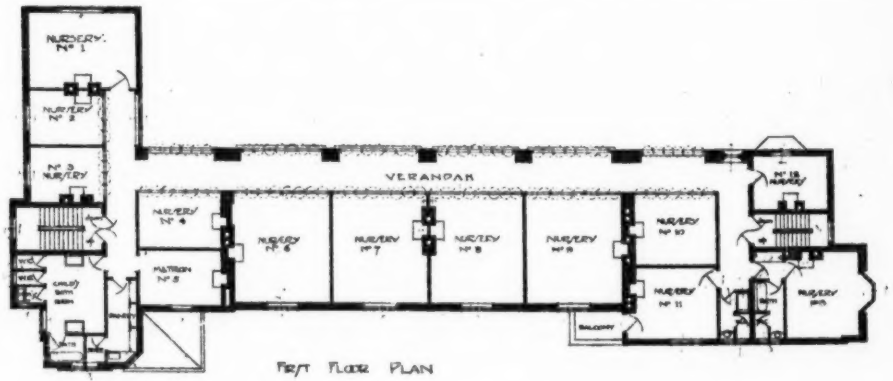
Second Floor Plan

SCALE FOR PLANS.

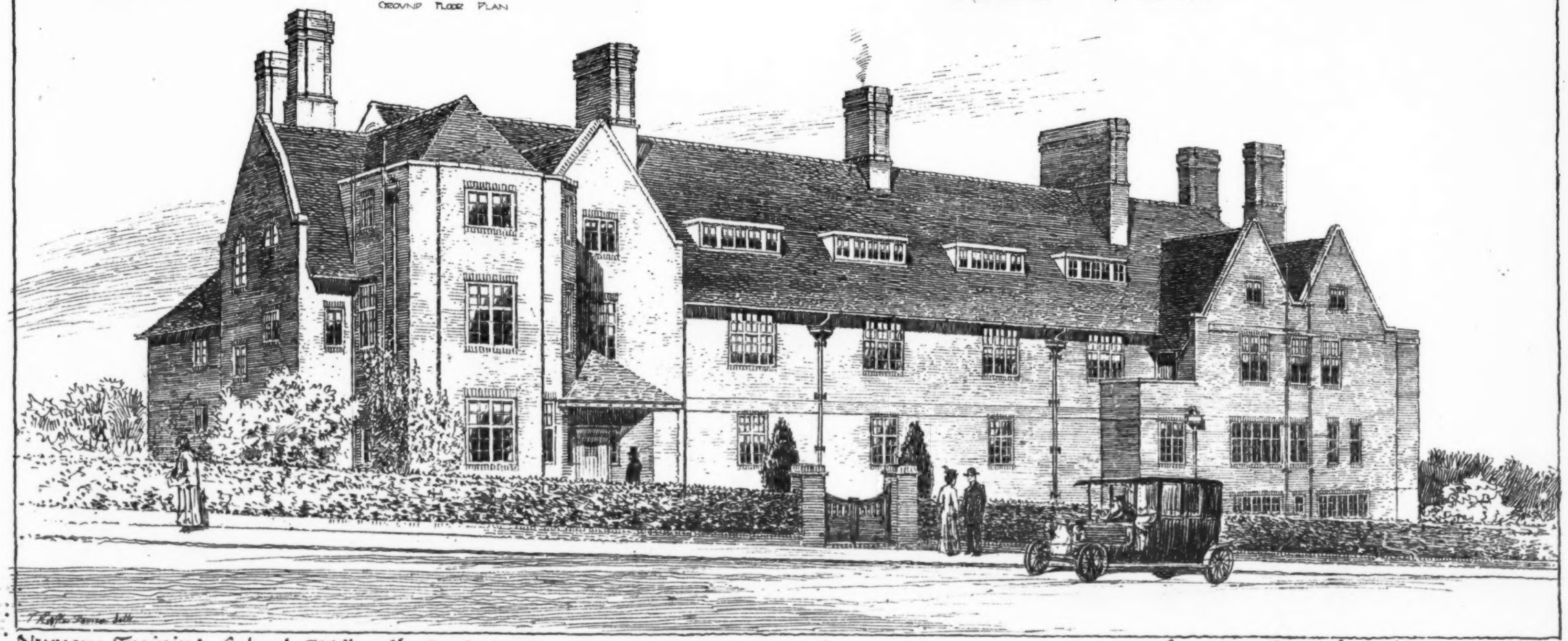
Nos. 19 & 21 WEYMOUTH STREET, W.—Messrs. Wills, Anderson & Kaula, Architects.



GROUND FLOOR PLAN

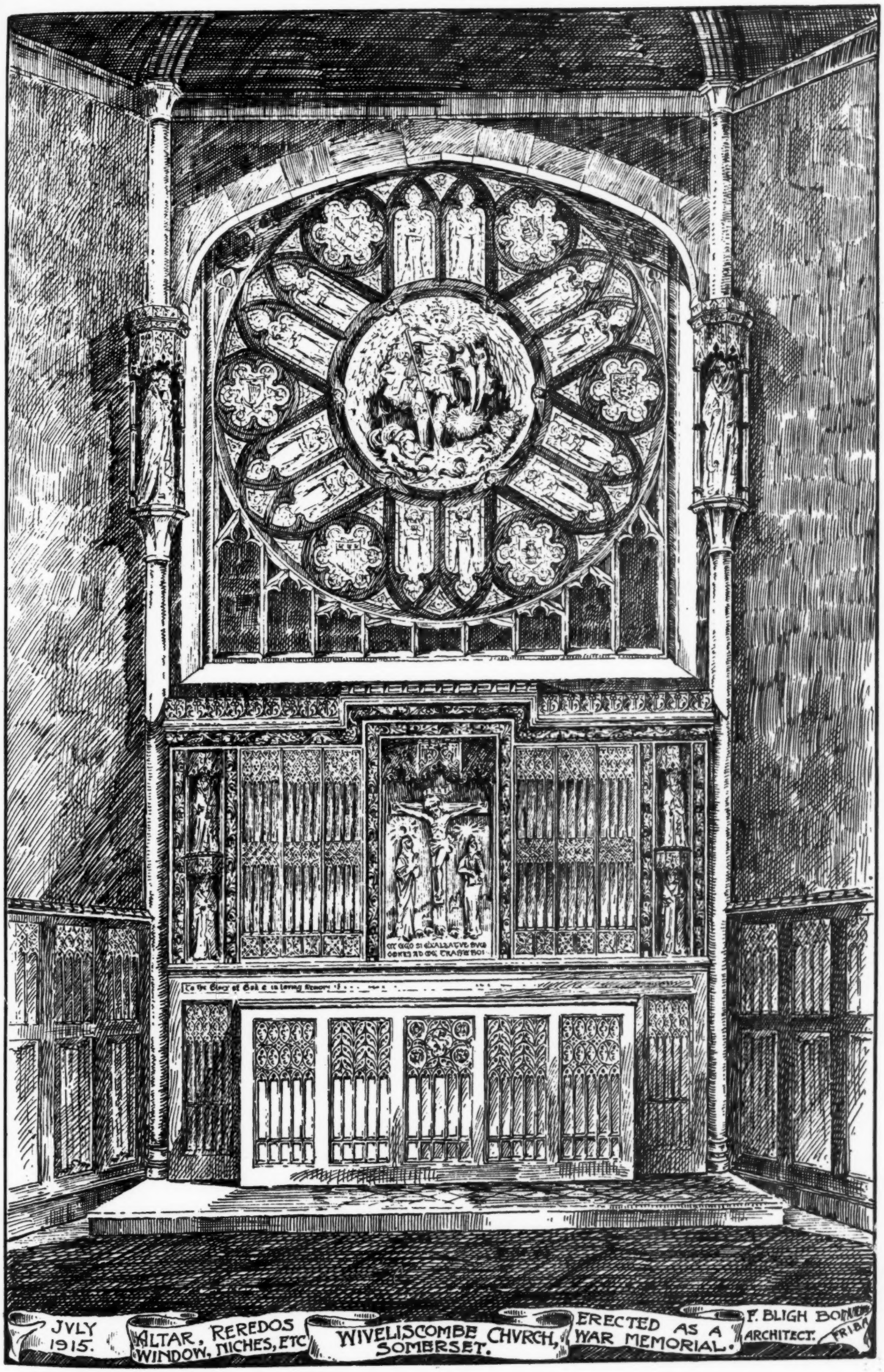


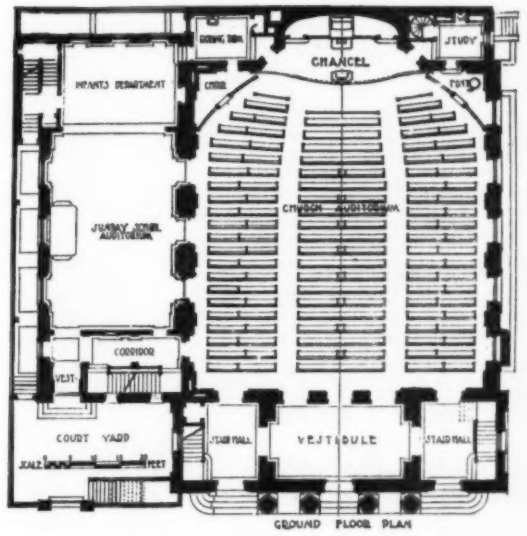
FIRST FLOOR PLAN



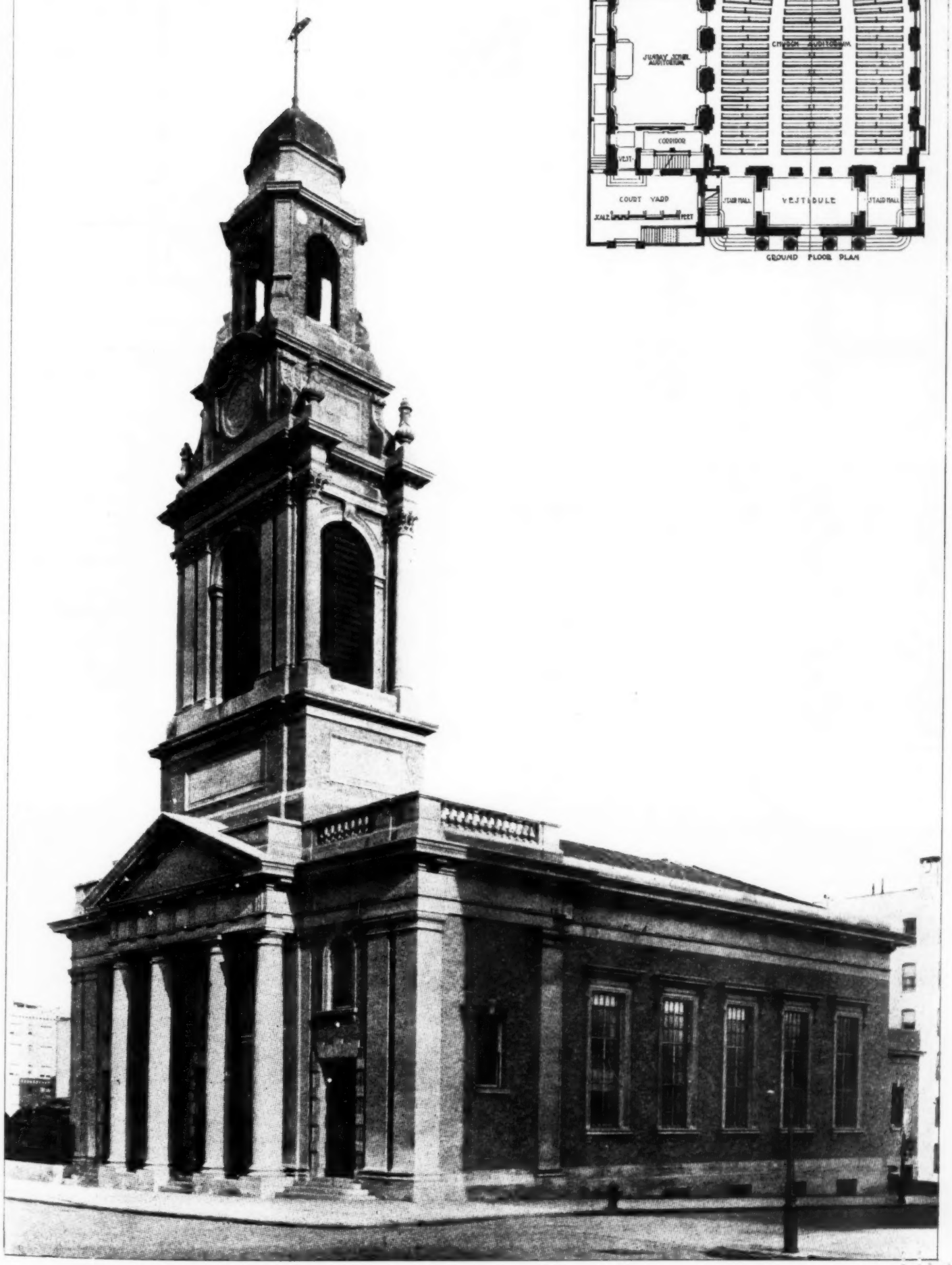
Nursery Training School Wellgarth Road. N.W.

Lovegrove & Papworth Architects 374-6 Old St. E.C.


To the Glory of God & in loving Memory
JULY 1915.
ALTAR, REREDOS WINDOW, NICHES, ETC
WIVELISCOMBE CHURCH, SOMERSET.
ERECTED AS A WAR MEMORIAL.
F. BLIGH BOND ARCHITECT. FRIBA

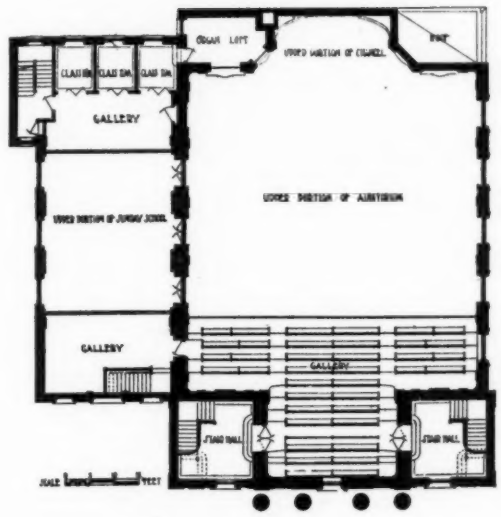


GROUND FLOOR PLAN

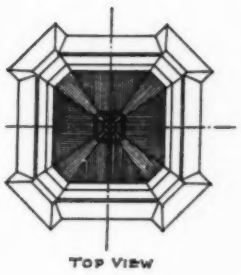


WEST PARK PRESBYTERIAN CHURCH, WEST 174TH STREET, NEW YORK, N. Y.—MESSRS. CARRERE & HASTINGS, ARCHITECTS.

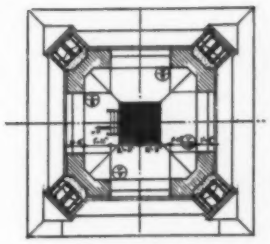
FROM "THE BRICKBUILDER," BOSTON.



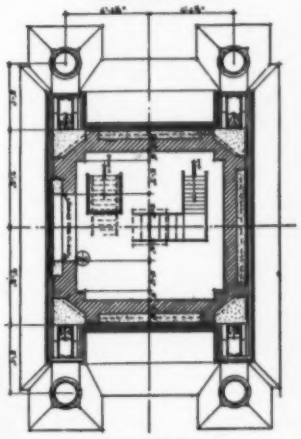
GALLERY FLOOR PLAN



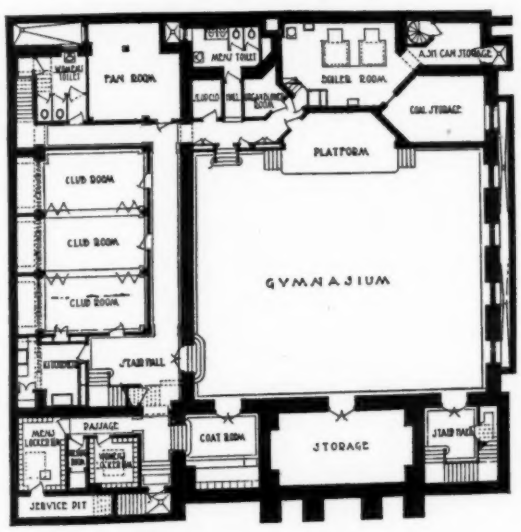
TOP VIEW



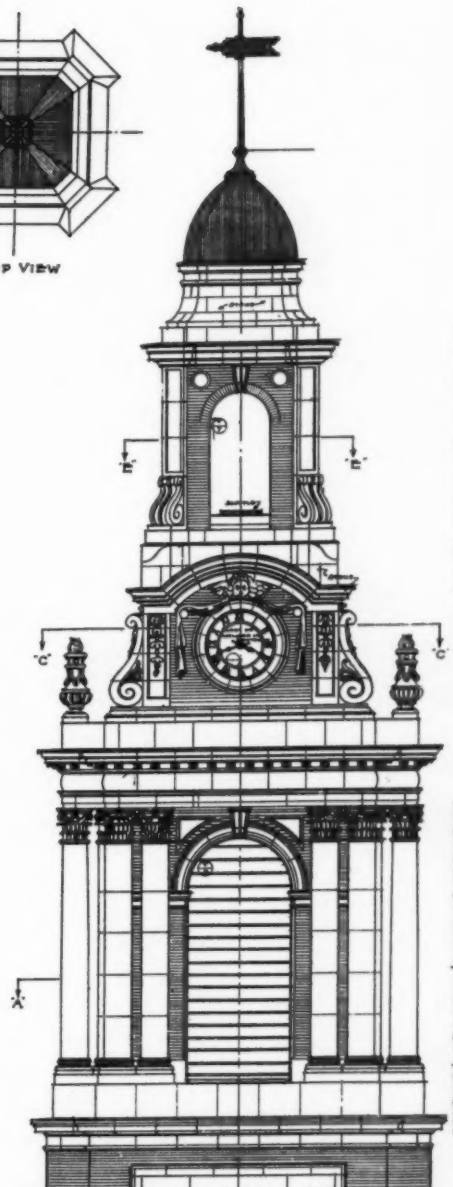
PLAN AT E—E

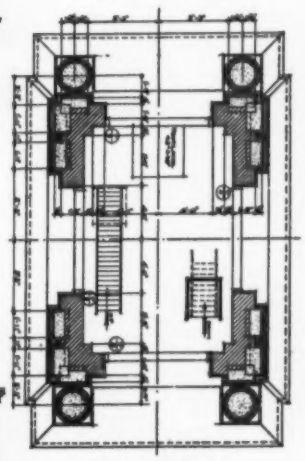


PLAN AT C—C

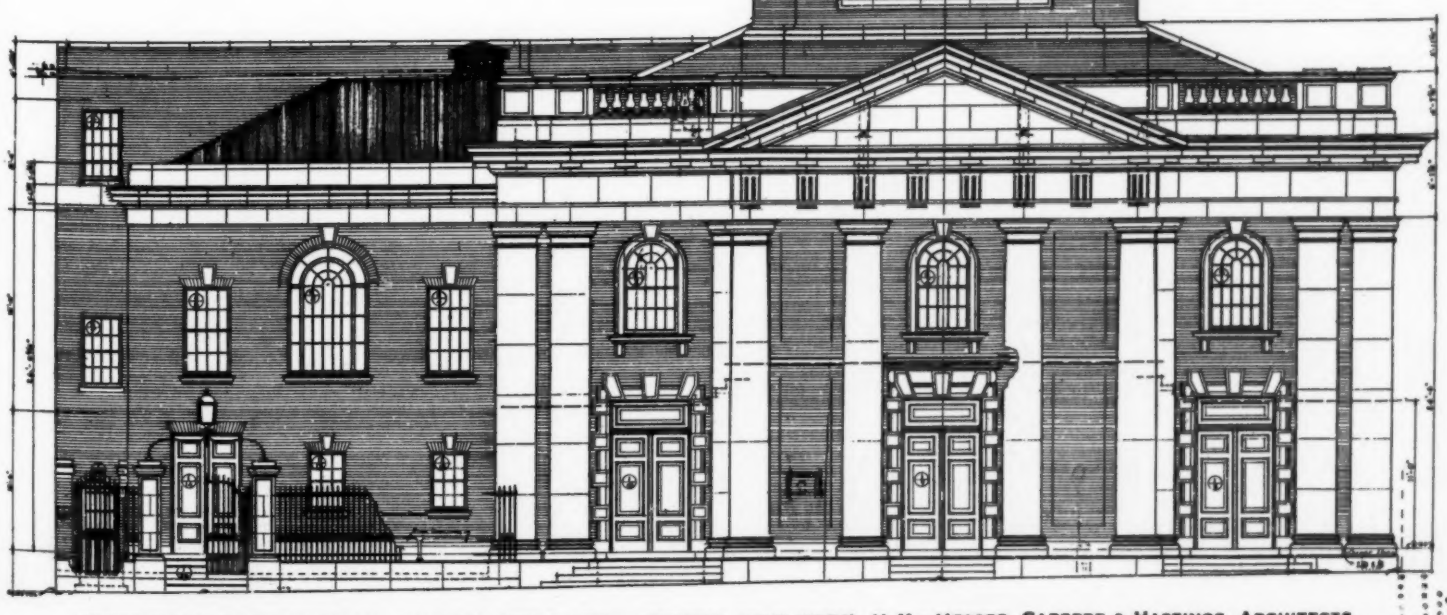


BASEMENT FLOOR PLAN





PLAN AT A—A



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